United Nations

E/CN.3/2002/24

Economic and Social Council

Distr.: General
18 December 2001

Original: English

Statistical Commission
Thirty-third session
5-8 March 2002
Item 7 (d) of the provisional agenda*
Activities not classified by field: definition and measurement of e-commerce

Developing statistics of e-commerce

Note by the Secretary-General

In accordance with a request of the Statistical Commission at its thirty-second session,** the Secretary-General has the honour to transmit to the Statistical Commission the reports of the Australian Bureau of Statistics, Statistics Canada and the Hungarian Central Statistical Office on their work on developing statistics of e-commerce, which, together with the reports contained in addenda to the present note, are intended to give members of the Commission and national statistical offices an indication of how some countries are approaching the definition and measurement of e-commerce. The Commission may wish to take note of the work described in the reports.

* E/CN.3/2002/1.

** See *Official Records of the Economic and Social Council, 2001, Supplement No. 4* (E/2001/24), chap. I, sect. A.

01-71081 (E) 190102

Reports of the Australian Bureau of Statistics, Statistics Canada and the Hungarian Central Statistical Office on their work on developing statistics of e-commerce

Contents

		Page
I.	Measuring e-commerce: Australian Bureau of Statistics experience	3
II.	Measuring electronic commerce: the Canadian experience (Statistics Canada)	14
III.	Development of e-commerce statistics in Hungary	20

I. Measuring e-commerce: Australian Bureau of Statistics experience

Introduction

1. The present paper describes Australian Bureau of Statistics (ABS) work on measuring e-commerce. To set the context, the paper first summarizes Organisation for Economic Cooperation and Development (OECD) work on statistical standards for e-commerce measurement. It then outlines Australia's development and collection work in the area of e-commerce statistics and describes the major challenges encountered.

OECD standards for e-commerce statistics[1]

2. OECD has been addressing the need for international standards for information and communication technology (ICT) statistics for a number of years. Following a recommendation made by ministers a conference on electronic commerce held in Ottawa in 1998, the OECD Working Party on Indicators for the Information Society set up an expert group on defining and measuring e-commerce at its April 1999 meeting. The aim of the expert group was to compile definitions of electronic commerce that are policy relevant and statistically feasible.

Definition of e-commerce

3. Work by the Secretariat and members of the expert group over the following year culminated in a model that was submitted to the Working Party at its meeting in April 2000. The model specified the following dimensions of an e-commerce definition:

- The processes (e.g., whether they involve monetary exchanges or transfers of ownership);
- The medium (communications infrastructure);
- The actors involved (e.g. whether internal to firms or third parties).

4. Four definitions were proposed:

- Electronic commerce transactions;
- Electronic commerce business processes;
- Internet commerce transactions;
- Internet commerce business processes.

5. At its April 2000 meeting, the Working Party agreed to proceed with the two transactions definitions, subject to further work being done by member countries to clarify aspects of the definition, such as defining the communications infrastructure.

[1] Several sources have been used to compile the present summary of OECD work, including the author's interpretation of meeting outcomes and debates, where official summaries are not yet available or do not show the detail required; in particular, much of the information contained in the paper is based on recent OECD debates, the outcomes of which were not officially available at the time of writing. The views expressed in the paper should therefore not be attributed to OECD or its member countries.

6. Following the work done by member countries during 2000 and early 2001, there are now agreed broad and narrow definitions of e-commerce transactions: the broad definition covers e-commerce transactions generally, while the narrow version covers Internet commerce only.

7. The broad definition is:

> An electronic transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, Governments and other public or private organizations, conducted over computer-mediated networks. The goods and services are ordered over those networks, but the payment and the ultimate delivery of the good or service may be conducted on- or off-line.

8. The narrow definition (which is a subset of the broad version) is:

> An Internet transaction is the sale or purchase of goods or services, whether between businesses, households, individuals, Governments and other public or private organizations, conducted over the Internet. The goods and services are ordered over the Internet, but the payment and the ultimate delivery of the good or service may be conducted on- or off-line.

9. Although there is reasonable consensus on the transactional definitions of e-commerce, there has been less progress made on the broader e-business concept (referred to, by the Working Party, as specific business processes on the Internet or computer-mediated networks). Nevertheless, there are some electronic business processes that the Working Party has identified as being currently measured across a number of surveys and therefore potentially available on an internationally comparable basis, including:

- Receiving and making online payments for goods and services;
- Conducting other financial transactions online, such as electronic banking;
- Digital delivery and receipt of products;
- Marketing and promotion;
- Use of online databases.

Measurement of e-commerce

10. In conjunction with the work on defining e-commerce, the OECD secretariat suggested a broad measurement model for e-commerce, consisting of the following stages:

- E-readiness (or e-infrastructure): preparing the technical, commercial and social infrastructures which are necessary to support e-commerce;
- E-intensity: the state of e-commerce usage, volume, value and nature of transactions;
- E-impact: relates to measurements of the difference made by e-commerce in terms of efficiency and creation of sources of new wealth. Such measures can be at a micro- or macroeconomic level.

11. At its April 2000 meeting, the Working Party considered this work and approved the measurement model. The Working Party attempted to define a set of core e-commerce indicators for each stage of the model, but because of

measurement difficulties agreed to initially restrict proposed indicators to the first two, e-readiness and e-intensity.

12. At its meeting in 2001, the Working Party approved the collection of a set of core e-commerce indicators for business and households. An initial collection of the core indicators was carried out in June 2001 and some data were included in the OECD publication *Science, Technology and Industry Scoreboard: Towards a Knowledge-based Economy* (issued in September 2001).

13. Collection will continue on a rolling basis in order to build a structured database of e-commerce statistics to be used in other OECD publications. It is expected that the core set of indicators will change somewhat as experience with the data is gained.

Australia's work in the field of e-commerce measurement

14. Since 1994, ABS has collected data on the use of information technology (IT) by households and individuals, businesses and government organizations. The range of information collected has developed over the years, shifting from an initial focus on computer use towards data on Internet use, web site features and Internet commerce.

15. Until now, the main emphasis for e-commerce measurement in Australia has been on commerce conducted via the Internet rather than use of other computer-mediated networks. It is expected that future developments may include extension of the ABS business technology use survey to include details of all electronic commerce, such as using non-Internet based electronic data interchange (EDI).

Household use of technology surveys

16. Quarterly household technology use surveys were conducted via the ABS Population Survey Monitor (PSM) in February 1994 and all quarters of 1996, 1998, 1999 and 2000. PSM, which ceased at the end of 2000, was an omnibus household survey and collected information on a range of topics from just over 3,000 households each quarter. From the year 2001, household technology use questions are included on available annual household survey vehicles. PSM and subsequent annual surveys collect household use of IT data via a face-to-face interview with a randomly chosen adult.

17. Household data are collected on a number of topics relating to the use of computers, the Internet and other technologies. Data are also collected on the selected adult's use of computers and the Internet at home, work and other places; details of their Internet purchases; barriers to Internet purchasing; electronic financial transactions and working from home activities.

18. Questions on Internet commerce activities have been asked of the selected adult in household surveys from 1999 to 2002. With minor variations between years, the questions are as follows:

- In the last 12 months, have you purchased or ordered goods or services for your own private use via the Internet?
- Did you purchase or order goods or services from Australia or overseas? (*Australia, overseas, both*)

- Did you pay for the goods or services online?
- In total, approximately how much have you paid for goods and services purchased via the Internet in the last 12 months? (*choices expressed in Australian dollar ($A) ranges*)
- Approximately how much have you paid online for goods and services purchased via the Internet in the last 12 months? (*choices expressed in $A ranges*)
- On how many occasions did you purchase goods and services via the Internet in the last 12 months? (*number*)
- What types of goods and services did you buy via the Internet in the last 12 months? (*list of items provided*)
- (*From 2000*) What was the main reason for not purchasing any goods or services for your own private use? (*list of reasons provided*)
- (*From 2000*) In the last 12 months did you sell or purchase shares over the Internet?
- In the last three months, did you use the Internet to pay bills, transfer funds etc?

Business use of technology surveys

19. ABS has conducted economy-wide surveys on the use of IT by employing businesses in respect of 1993-1994, 1997-1998, 1999-2000 and 2000-2001. The business technology use survey will be conducted annually for the foreseeable future. The scope of the surveys is all employing business units in the Australian economy, except for agriculture, forestry and fishing businesses, government administration and defence organizations, and education and religious organizations. Data on the farm use of IT have been obtained by including questions on the ABS annual agricultural commodity survey.

20. The focus of the 1993-1994 business technology use survey was mainly on issues related to computer use and IT income, expenditure and employment. The 1997-1998 survey collected a wider range of data, with an emphasis, for the first time, on Internet use by business, including details of Internet activities/services used and barriers to Internet access. An attempt was also made to collect a value for Internet sales transactions.

21. The 1999-2000 survey was much larger than the first two, with 15,500 businesses approached. The value of Internet sales was again sought, with the definition used being "online sales orders received via the Internet regardless of method of delivery or payment". A number of questions were dropped from the previous survey (e.g., IT income and expenditure and number of IT employees) and others were added (e.g. on web sites and their use).

22. For the 2000-2001 survey, about 14,000 businesses were approached, with many of the questions retained from the 1999-2000 survey. The major difference between the collections was a change in the approach to measuring the value of Internet commerce transactions, which was done to simplify solutions to conceptual and reporting problems posed by agents and intermediaries, such as financial services organizations (the issue being whether they should report value of

sales/transactions or the value of commissions/fees received on those sales etc). The concept was changed from a *value of orders* to an *attributed income* basis for the 2000-2001 survey. Attributed income is the value of income which has resulted from sales of goods or services via the Internet. It can be expressed as an aggregate value and as a ratio, the denominator of which is income (including non-operating income but excluding extraordinary items). That change has enabled a generalized questionnaire approach to be maintained for all businesses regardless of industry.

23. Questions on the benefits of Internet purchasing and the impact of Internet selling were also added to the 2000-2001 survey.

24. The 2000-2001 questionnaire included the following Internet commerce items:

- Which of the following Internet activities or services did this business use during the year ended 30 June 2001?
  - Activities relating to purchasing goods and services:
    - Ordered goods and services;
    - Made electronic payments/authorizations;
    - Received invoices;
  - Activities relating to selling goods and services:
    - Received orders for goods and services;
    - Received payments/authorizations;
    - Sent invoices to customers;
    - Delivered products electronically;
    - Provided after sales service;
  - Other transactions (relevant to electronic commerce):
    - Advertise or promote this business;
    - Banking and financial services;
    - Electronic lodgement of government forms, applications payments etc.;
- Which of the following did your web presence offer as at 30 June 2001?
    - Advertising of business' own products;
    - Customer account information;
    - Online ordering;
    - Shopping cart facilities;
    - Facility to track orders;
    - Online payment capabilities;
    - Capability for secure access or transactions;
    - Integration with backend systems;

- Did this business order any goods and services via the Internet or the World Wide Web during the financial period?
- Which benefits, if any, have been achieved by ordering goods or services via the Internet or the World Wide Web? (*list of benefits*)
- Did this business earn income from the sale of goods and services ordered via the Internet or the World Wide Web during the financial period?
- Of the business' total income, please estimate the amount which resulted from sales of goods or services via the Internet or the World Wide Web? (*total income is asked as a separate question*)
- Did this business start receiving orders via the Internet or the World Wide Web at the insistence of customers or clients?
- Please indicate how the ability to receive orders for goods or services via the Internet or the World Wide Web has affected this business (*list of items, each to be categorized by the respondent as having decreased, not changed, increased or not applicable*).

25. The ABS business technology use survey will change over time to reflect users' changing data requirements, developments in international standards and changes in technologies and their use. In line with those factors, testing for the 2001-2002 survey is expected to include such topics as:

- Electronic commerce by means other than the Internet, e.g. the incidence of use of such technologies as electronic data interchange;
- IT security technologies in use;
- IT skills issues;
- Methods of effecting Internet commerce from the seller's perspective (for instance, via simple e-mail, more sophisticated web site functionality via an Internet market place site etc.);
- The feasibility of dissecting Internet income according to the customer (a business-to-business/business-to-consumer split).

Government use of technology surveys

26. Technology use surveys of general government organizations were conducted in 1993-1994, 1997-1998 and 1999-2000. The first two collections were designed to complement the business surveys of technology use. The 1999-2000 collection deviated significantly from its business counterpart, instead measuring a range of government specific activities (such as outsourcing and provision of electronic services). The government technology use surveys cover federal, state/territory and local government organizations in Australia.

27. The 1997-1998 government survey asked a number of electronic commerce questions, as follows:

- Which of the following functions were undertaken using the Internet?
  - ➢ Purchase of goods and services:
    - Placing purchase orders;

- Receiving invoices;
- Making payments;

➢ Sales of goods and services:

- Marketing/promotional activities;
- Receiving sales orders;
- Sending invoices;
- Receiving payments;
- Coordinating delivery arrangements;

➢ Other transactions:

- E-mail;
- Lodging government forms/tenders;
- Other;

➢ Provision of electronic funds transfer point of sale facilities to clients.

28. Although many of those items are relevant to government organizations, there was a perceived need to focus more on the types of services that are being provided online by the Government. By using online services, the Government potentially becomes a key driver of growth of the information economy, as well as enabling the Government itself to become more efficient.

29. ABS designed its 1999-2000 survey to reflect those needs. As a result:

- The 1999-2000 government survey had a strong focus on electronic services being offered by the Government, particularly via the Internet;
- Those services include e-commerce activities, such as the ability to receive electronic payments by a variety of means (interactive voice response, call centres, web sites etc.) and the ability to offer online ordering via a web site;
- We also asked about use of some specific e-commerce related technologies, such as use of encryption technologies and whether the organization was undertaking online procurement.

Measuring Internet commerce: challenges encountered

Collection challenges

30. There are several collection challenges in the measurement of Internet commerce, especially from the business perspective (the concept is much simpler for households and individuals). In ABS experience, they can be summarized as follows:

- Designing a collection form to suit varying levels of technological sophistication among respondents is difficult and requires a lot of testing. It is important to avoid technical language and concepts as far as possible;
- Structuring a collection form can be difficult. Our forms include items on use of IT, starting with computer use and ending with Internet selling (the order is

simplest to most sophisticated use). Use of filter questions and careful sequencing is important to achieve a logical flow and to minimize respondent load. A simple example of the complexity inherent in such surveys is the treatment of businesses which *do not* use a computer. Should they be filtered out of all subsequent questions (which we did for our 1999-2000 survey) or retained on the basis that they might use other technologies, such as web sites, via third parties (we followed this logic for our 2000-2001 survey)?

- Some aspects of e-commerce are still rare events and therefore require high sample sizes to produce good estimates. This is especially true of measures of the value of Internet commerce. For instance, our 1999-2000 survey was sent to nearly 15,000 businesses, yet the standard errors were such that we were only comfortable publishing an estimate of Internet commerce value at the "total" level;

- Record-keeping practices are not always aligned with the interests of statistical users. For instance, there is a strong interest in the split between business-to-business and business-to-consumer e-commerce, but the limited testing we have done on the subject indicates that businesses may not be able to distinguish transactions between other businesses and consumers. We expect to test that issue again for the 2001-2002 business collection;

- The income concept associated with Internet commerce transactions needs careful thought (see discussion below).

31. More information on some of these issues is presented below.

32. *Households and individuals*. Over the years, only minor methodological issues have arisen with the Household Use of Technology Survey. The relatively small quarterly sample sizes have generally restricted quarterly output to the main aggregates. There appear not to have been any major recall problems associated with questions asked about the last 12 months, including the value of Internet commerce transactions by the selected adult. It is possible that asking for expenditure within ranges has reduced that potential problem. It is also possible that the incidence of recall bias will grow as Internet purchasing becomes more commonplace (and therefore each purchase transaction less memorable).

33. *Businesses*. For the 1997-1998 survey, the main problems with Internet commerce items were high standard errors and reporting problems. Responses to a number of data items were considered of insufficient quality to publish. Of particular note was the value of Internet sales, which was affected by standard error problems, question design issues and record-keeping inadequacies. Only 315 of the 6,800 employing businesses selected answered positively to receiving sales orders via the Internet, and a large proportion had to make estimates because primary data were not available. In the 1999-2000 survey, the main problem encountered in respect of Internet commerce measurement was that some respondents were confused about what should be included in Internet sales, particularly businesses which acted as agents (e.g. stock brokers and travel agents) and financial institutions. Some reported commission or fee earnings, while others initially reported the whole transaction value.

34. *Government organizations*. A number of methodological issues have been encountered with the government technology use survey. The main issues concern the quality of the population frame, coverage of reporting by government

departments and reporting of some of the data. Those problems are mainly not specific to the measurement of Internet commerce but reflect the difficulties inherent in conducting surveys of this sector.

Treatment of Internet income

35. There is general agreement among OECD countries on what constitutes an e-commerce transaction. There has been less work on the associated value and income concepts. Australia is now conducting its fourth business use of technology survey. Both the second and third surveys sought the value of Internet sales and the value of total sales in order to produce the ratio of Internet sales to total sales. We wanted to be able to produce that ratio at a unit record level as well as for individual sectors and the whole economy.

36. We found the exercise far from simple and have posed a number of questions regarding the correct income concept, including:

- What is the appropriate numerator and denominator for the Internet: total type of ratios?
- Will they vary in different situations and for different sectors?
- How should we treat the finance and insurance sector?
- Assuming that organizations will not necessarily know the value of Internet transactions undertaken on their behalf, how do we capture that information?
- Should we be recording the value of sales made by agents or the value of commissions earned on those sales?

37. In our 1999-2000 business technology use survey, we used an income concept based on total sales of goods and services. We tried to include gross sales made by agents on behalf of other organizations. The denominator used in order to calculate the proportion of Internet to total sales was also based on that gross sales concept (that is, it included sales made by organizations on their own or others' behalf). The use of that concept resulted in a complex form and confusion to respondents.

38. We regarded the agent's problem as one which was important to solve. Not only are there a large number of agents operating in the economy (including real estate agents, travel agents, betting agents and ticket agents) but we thought that they were likely to find that Internet selling could bring efficiencies and therefore they might be early adopters of enabling technologies.

39. Another problematic area of Internet commerce is financial transactions (e.g. banking, stockbroking and insurance). We were definitely not interested in collecting the value of such transactions where they occurred over the Internet but assumed that we needed the value of fees on those transactions.

40. At time of writing, it is too early to tell whether use of the attributed income approach for the 2000-2001 collection has solved those problems (see para. 22 above).

Technology boundary issues

41. By and large, the definition of e-commerce transactions formulated by the OECD Working Party on Indicators for the Information Society is not reliant on

tec[h]nological developments. For instance, the narrow definition refers simply to the Internet rather than naming or referring to Internet protocols. Indicating a possible departure from that stance, at its 2001 meeting, the Working Party debated whether e-mail was a valid medium for conducting Internet commerce.

42. Several countries, including Australia, argue that defining Internet commerce on the basis of technologies used would make it difficult to maintain a definition and therefore any time series of statistics based on it. It can also present problems in trying to convey concepts to users. For instance, e-mail can be several things: it can be a simple message (arguably analogous to a fax) sent through the Internet, a message generated by pressing a button in a web site or a so-called interactive e-mail, where the receiver of the e-mail really sees a web page and by a simple click can transmit an order that ultimately is a web order. Other OECD countries have argued just as strongly that only interactive e-mail should be considered to be a medium for effecting Internet commerce because it is the only form of e-mail which enables efficiencies from automatically linking front- and back-end processes. It is likely that more work on that issue will be done leading up to the 2002 meeting of the Working Party.

Conclusion and future developments

43. ABS work in the field of e-commerce measurement has been significant and will continue to expand and evolve. Impetus for change includes users' changing data requirements, developments in international standards, introduction of new technologies and changes in patterns of technology use.

44. In the near future, the business technology use testing programme will include such e-commerce topics as:

- Electronic commerce conducted by means other than the Internet;
- Methods of effecting Internet commerce from the seller's perspective;
- The feasibility of dissecting Internet income by type of consumer.

45. Although immediate changes in respect of e-commerce measurement are not planned for household and government technology use surveys, they can also be expected to develop in response to user needs and technology developments. Topics likely to be of future interest include online procurement by the Government and use of an expanding range of Internet services offered to householders.

46. In the future, we can expect more collaboration in the Asia and Pacific region on the measurement of information technology and telecommunication (IT&T), including e-commerce. That work was advanced in May 2001, with the first technical meeting of Asia and Pacific statisticians on IT&T statistics. The meeting was held in Brisbane, Australia, and the following countries or areas were represented: Singapore; Japan; Republic of Korea; Hong Kong, China; New Zealand; and Australia.

47. The broad aim of the meeting was to share experience and work together to better understand the issues and future directions for statistical work in this field. A number of proposals were agreed at the meeting, covering statistical classifications and standards, statistical frameworks and the compilation of data on several IT&T topics.

Further information

48. Further information on ABS work in the information technology and telecommunications statistics field can be obtained from:

Sheridan Roberts
Director, Science and Technology Statistics
Australian Bureau of Statistics

E-mail: sheridan.roberts@abs.gov.au

49. ABS releases the following publications on the use of IT in Australia:

- *Government Use of Information Technology, Australia* (catalogue No. 8119.0);
- *Business Use of Information Technology, Australia* (catalogue No. 8129.0);
- *Household Use of Information Technology, Australia* (catalogue No. 8146.0);
- *Use of Information Technology on Farms, Australia* (catalogue No. 8150.0).

50. Summary information on IT publications is available on the ABS web site (see "Main features", at www.abs.gov.au).

51. The Information Technology statistics theme page on the ABS web site has links to the above-mentioned summaries and other information on the IT&T statistics programme. The theme page can be accessed from the ABS web site (go to www.abs.gov.au, select "Themes" from the menu shown on the left side of the page and select the "Information technology" theme page).

52. More information on the meeting of Asia and Pacific statisticians on IT&T statistics can be accessed from the "Information technology" statistics theme page on the ABS web site.

II. Measuring electronic commerce: the Canadian experience (Statistics Canada)

1. Introduction

1. There is considerable policy interest in the magnitude and "transformative" effect of electronic commerce. In response to that interest, Statistics Canada has been measuring the extent of electronic commerce in both business practice and households since 1999: both the proportion of businesses, households and public sector enterprises engaged in electronic commerce, and the value of sales over the Internet. In addition, we have provided information on the technologies that lead to or enable electronic commerce, such as computer use, Internet use, the presence of web pages and EDI over proprietary networks. The development of the statistical programme did not happen in isolation. The content and conceptual framework have been crafted with our partners in Industry Canada and in collaboration with OECD. As a result, the information produced supports the formation of policy and is internationally comparable.

2. The present paper describes how Statistics Canada measures electronic commerce. The first part provides background on the policy environment that gave rise to the Government's connectedness project (of which the measurement of electronic commerce is a part). Second, a description of the survey programmes measuring business and household electronic commerce is provided. Finally, there is a discussion of where the electronic commerce programme is going.

2. Setting the stage

3. The Government of Canada, in 1998, adopted the policy of "Connecting Canadians". This policy called for the promotion of universal access of businesses, households and communities to the Internet to support online sales or delivery of goods or services, both from the public and private sectors.

4. The Government's electronic commerce strategy involved the creation of certain "framework conditions" that would provide an environment conducive to performing commercial transactions over the Internet, including the creation of technology-neutral taxation, the development of policies on cryptography and public key infrastructure, the development of guidelines to protect consumers and legislation to protect personal information.

5. Coincident with the Government's focus on connectivity was an increasing preoccupation with the topic in OECD. An OECD ministerial conference held in Ottawa in 1998 identified gaps in official statistics, and the OECD Working Party on Indicators for the Information Society was invited to develop working definitions of electronic commerce and guidelines for their use, as well as model surveys of the use of ICTs and electronic commerce. The Working Party produced definitions of electronic commerce in 2000, and in 2001 revised them slightly and added guidelines for their application. The definitions, guidelines and a model survey of business were released by OECD in November 2001. Work continues on model surveys of other sectors. Although Canada derives the benefit of internationally agreed concepts and definitions, Canadian statisticians and policy makers have been actively involved in the process of building international consensus.

6. Parallel with those developments, Statistics Canada proposed to the Government to establish a "fund" (actually an annual budget allocation) with the explicit purpose of shedding light on issues of direct and current policy interest to federal departments. The information "gaps" would be identified by an interdepartmental group, but with a veto option on any project by the Chief Statistician of Canada. The Government approved the creation of the fund and one of the projects funded through that initiative was the development of an annual programme of socio-economic indicators of connectedness, of which electronic commerce was a part. That resulted in a collaborative partnership between the policy department and the statistical office, a condition which has been a key to the success of the electronic commerce programme, ensuring that the creation of new data sets would be used to support policy analysis.

3. The statistical programme and some results

7. Although the sale of goods and services over the Internet is often thought to be the epitome of electronic business, it is only one facet of it. Others include the use of the Internet as a tool to help develop products, communicate with suppliers, arrange for production and delivery and provide after-sales service. Similarly, from the perspective of households, data on orders placed over the Internet cannot be examined in isolation from other related activities, such as Internet use and the use of the Internet to facilitate commercial transactions (i.e., research over the web or "window shopping"). Official statistics have provided some insight into the reach of electronic commerce into the Canadian economy.

8. Statistics Canada uses the OECD definition of an Internet transaction, which includes orders placed over the Internet, with or without online payment or delivery.

Internet purchases from home

9. Within households, electronic commerce can be viewed as a continuum of activities. Just as a child will crawl before walking and then running, an individual typically proceeds through several stages before actually placing an order over the Internet: he must use a computer, proceed to become an Internet user, explore the goods and services available on the Internet etc. All those stages are measured in the Statistics Canada Household Internet Use Survey (HIUS).

10. First conducted for the 1997 reference year, HIUS was created to measure the use of the Internet, by location, categorized by various household characteristics (income, type of family, geography and characteristics of the household maintainer). In 1999, the content expanded to include information on Internet shopping. For 1999 and 2000, HIUS collected information on electronic commerce by households, which typically accessed the Internet from home (as opposed to the workplace, school or some other location), for the sole consumption of the household. The sampling unit is the household, and a designated member of the household is interviewed with respect to the online orders made by all members of the household.

11. HIUS is administered as a supplement to a sub-sample of the Labour Force Survey. With a sample of 43,000, it is representative of households in the civilian,

non-institutionalized population, 15 years of age and older in Canada's 10 provinces.[2]

12. Two limitations are inherent in the survey as currently implemented. First, data are collected only for the household, not for the individual. Although households can have a geography, income and type of Internet connection (i.e., telephone dial-up access versus high speed), they cannot have an age, sex or education (i.e., individual characteristics). Also, electronic commerce information is being sought only from households that regularly use the Internet from home; purchases over the Internet from other locations are excluded.

13. Despite those limitations, it has still been possible to create a telling portrait of the state of electronic shopping in Canada. In 2000, among Canadian households that regularly used the Internet from home, over half (55 per cent) used the Internet to support a decision to purchase a good or service, either for research on the commodity (window shoppers) or to place an order online. In turn, 56 per cent of those Internet shopper households placed an order online. Canadian households spent $1.1 billion on 9.1 million orders over the Internet placed from home. Almost four fifths of those electronic commerce households paid for their purchases online. Domestic sales accounted for slightly more than half (55 per cent) of orders and 58 per cent of spending online.

14. Cycle 14 of the General Social Survey measured individual as opposed to household use of the Internet; it found that in 2000 Internet users were generally younger, had a higher income and were more educated than those that did not. Additionally, anglophones were more likely to use the Internet than francophones. The survey also found that adults banking or placing an order over the Internet tended to be in their late 20s and 30s. Also, men were more likely to purchase goods and services over the Internet.

15. Privacy and security was a significant concern among Internet users. Among francophones, language was also cited as a barrier to making purchases or banking over the Internet. Men were slightly less concerned about security issues than women. Also, younger Internet users were generally less concerned about privacy and security.

Businesses electronic commerce

16. Since 1999, surveys have been conducted by Statistics Canada to quantify the nature of ICT use by business: the use of computers, the use of the Internet, the creation of web sites and the use of the Internet for direct commerce.

17. In 1999, the Survey of Information and Communications Technology and Electronic Commerce (ICTEC) focused on the use of ICTs and electronic commerce across almost all public and private sector enterprises.[3] At its inception, a very detailed questionnaire was developed to measure the uses of various ICTs and electronic commerce (sales and purchases). The survey was to be administered at the establishment level and it ran as a supplement to the Survey of Capital Expenditures.

[2] Excluding residents of the Yukon, Northwest Territories and Nunavut; also excluding people living on Indian reserves, full-time members of the Canadian Armed Forces and inmates of institutions.

[3] This survey excluded from its sample frame agricultural and construction industries, as well as municipal governments.

This well-established survey is establishment-based and covers almost all public and private sector industries.

18. In retrospect, that decision was a mistake. Indeed, a poor response rate was initially experienced during data collection and two things became apparent. First, the establishment was not the proper level in an organization to collect much of the information sought (i.e., sales over the Internet). Second, the respondent for the Survey of Capital Expenditures was not always the proper respondent for ICTEC. As a remedial measure, two steps were taken: a short form of the questionnaire was developed as a follow-up and the methodology was revised to produce estimates at the enterprise level.[4]

19. Released in August 2000, the data in this survey provided a baseline measure of the use of computers, e-mail and the Internet by Canadian business and public enterprises. It outlined the extent to which public and private sectors had developed web sites and engaged in electronic commerce, including the value of sales over the Internet. Barriers to electronic commerce were also identified (Bakker, 2000).

20. The survey was repeated in 2000 as the Survey of Electronic Commerce and Technology. In order to avoid some of the difficulties experienced in the previous year, the content of the questionnaire was reduced, focusing on questions that could be answered by a single person for the entire enterprise. For instance, it included questions on sales over the Internet but excluded purchases, which are largely made in a decentralized fashion. Although the survey continued to use the Capital Expenditure sample, some aspects of the methodology changed. The collection unit became the enterprise (eliminating the need to aggregate establishment data to enterprises).[5]

21. In addition to the data elements indicated above, estimates from the 2000 survey included the use of intranets, extranets, wireless communications, EDI on proprietary networks and electronic funds transfer. The 2000 survey also yielded a richer dataset on electronic commerce, including not only the value of the sales over the Internet but also the percentage of those sales made to households (business to consumer) and businesses (business to business) as well as export sales.

22. The 2000 survey yielded some important results. In 2000, private sector sales over the Internet amounted to $7.2 billion, a 73 per cent increase over 1999. However, expressed as a percentage of total operating revenue, sales were 0.4 per cent, an increase of 0.2 per cent over 1999. The value of sales over the Internet was small.

23. Also, between 1999 and 2000, the proportion of businesses selling online fell from 10 per cent to 6 per cent. For the enterprises that were in the sample for both 1999 and 2000, for every two businesses that started to sell online in 2000 five stopped. Finally, the proportion of economic activity accounted for businesses that sold over the Internet in 2000 was 25 per cent, up from 17 per cent in the previous year. Electronic commerce appeared to become concentrated into fewer and larger

[4] To do this, enterprise-level data were generated from the establishment data collected. Then the enterprise data was disaggregated to all establishments within the enterprise (whether or not in sample). The sampled establishments were then used in the same manner as originally intended under the establishment sampling design (Whitridge and Beaucage, 2000).

[5] Despite the collection unit being the enterprise, the sample unit remained the establishment; consequently, the same weight share method was used to calculate the estimates.

businesses. Statistics Canada was the first organization in Canada, public or private, to publish those insights, which had a considerable impact on public discourse on electronic commerce in Canada. The clear implication of that finding is that there is considerable volatility behind the apparent strength of electronic commerce.

4. Next steps

Households

24. HIUS was originally designed to measure Internet use by households, not specifically as a tool to measure electronic commerce. As stated above, the survey in 1999 and 2000 measured electronic commerce from home. For the 2001 reference year, that will be expanded to include orders placed over the Internet from any location (home, work, school, public libraries).

25. A remaining weakness of the survey is that it measures only the characteristics of the household or the characteristics of the household maintainer: it does not set out to measure the characteristics of individual users of the Internet. Plans are being made for redesigning the survey programme for the 2003 reference year to collect information on sales over the Internet that can be categorized by both individual and household characteristics.

Businesses

26. The sample for the 2001 survey was drawn at the enterprise level, independently of the Survey of Capital Expenditures, which will take some of the sample away from more capital intensive industries (i.e., manufacturing) and reallocate it to others (wholesale and retail trade and services). The sample unit is the enterprise, eliminating the need for the special methodology needed to convert an essentially establishment-based survey into an enterprise survey.

27. The results of the 2001 survey will also provide some insight on inter-firm linkages. Recall that five businesses stopped selling online in 2000 for every two that started. When asked about barriers to electronic commerce, respondents in general replied that their products did not lend themselves to Internet transactions or that they preferred to maintain current (i.e., face-to-face) business models. The businesses that "exited" electronic commerce in 2000 were more likely to reply that their customers or suppliers were not ready. Some understanding on how information and electronic commerce transactions move along the supply chain will provide valuable insight on where those bottlenecks may be occurring.

5. Conclusion

28. Statistics Canada has developed an annual programme to measure electronic commerce and related enabling technologies in households, businesses and the public sector. The framework underlying those statistics has been developed in close collaboration with the policy department and OECD. Plans are in place to improve the data and to broaden the coverage to continue the contribution to the public policy debate.

References

Bakker, Cathy (2000). *Information and Communications Technologies and Electronic Commerce in Canadian Industry*. Ottawa, Statistics Canada, Catalogue 88F0006XIB, No. 4.

Ellison, J., C. Earl, and S. Ogg (2001). Internet shopping in Canada. *Connectedness Series*. Ottawa, Statistics Canada, catalogue 56F0004MPE, No. 3.

Gault, F. and G. Peterson (2001). Measuring the diffusion of information and communications technology in society and its effects: Canadian experience. Paper presented at an International Association for Official Statistics satellite meeting on statistics for the information society, Tokyo, 30 and 31 August 2001.

OECD (2000). Defining and measuring electronic commerce: a provisional framework and follow-up strategy. Paris.

Peterson, G. (2001). Electronic commerce and technology use. *Connectedness Series*. Ottawa, Statistics Canada, catalogue 56F0004MPE, No. 5.

Whitridge, P. and Y. Beaucage (2000). Statistics Canada's electronic commerce survey. Paper presented at a meeting of the Statistics Canada Advisory Committee on Statistical Methods. Ottawa, 6 October 2000.

III. Development of e-commerce statistics in Hungary

1. Importance of measuring e-commerce

1. Changes which, in terms of importance, can be compared to those that took place during the industrial revolution have brought the issues related to the development of the information society into public focus. Decision makers in political, business and scientific spheres are more and more aware of the historical importance of the current process. A new strategic raw material has appeared on the scene — knowledge — which is available via the new information and communication technologies and is suitable to provide a long-term definition of the development prospects, growth rate and economic strength of countries, as well as the quality of life of their population. A growing number of Governments realize that a new world order is taking shape, that a rearrangement of power relations is under way and also that regions and countries that are falling behind must be given a chance to catch up if they are not to continue to decline.

2. Therefore, more and more Governments deem it necessary to steadily promote the spreading of this process by administrative means. Those who are quick to react are making serious endeavours to develop national strategies and action plans to find the required financial sources and create the conditions for measurement.

3. The global significance of the information society also involves the importance of its prominent sub-systems, which often get in the limelight, even separately. Application of ICTs is the basic issue of the penetration of the process, and e-commerce is the paramount area that stands out from among the application possibilities. By many, e-commerce is regarded as the most important catalyst of business processes in the long run.

4. Penetration of e-commerce may, hopefully, bring about the acceleration of business and financial processes, an increase in the turnover rate of goods and money, a reduction of inventories and funding charges and a decrease in the costs on the supply side of goods and services.

5. On the demand side, much less time will be needed to sum up supply; prices and quality parameters will become fully comparable: the market position of the buyer will be reinforced; and as a result a decrease in prices may be expected.

2. Governmental endeavours to stimulate the process

6. When Hungary officially applied for accession to the European Union (EU), it meant not only a decision to become a member but also a commitment to accept burdens incidental to keeping up with the development rate of EU countries. That also means commitment to the development of a knowledge-based information society. The development of e-commerce is of paramount importance in Hungary.

7. In order to intensify this process, the Government has played an increasing role in recent years:

- In 2000, an independent governmental organization, the Government Commissioner's Office for ICT, was set up to coordinate the development of the information society;

- In 2001, the first version of the national information society strategy was prepared by the specialists of various areas most affected in the development of the information society;
- In early 2002, the statistical monitoring system for measuring the efficiency of strategic steps will be completed;
- In 2001, a long-term programme for national development, the Széchenyi Plan, was launched, in which the information society and economic development programme constitutes a separate chapter. Concrete action programmes are outlined and resources defined in the plan in order to achieve the objectives set forth.

8. Remarkable progress has been made in setting up the statutory and regulatory background. Among others, acts have been passed on:

- Telecommunication;
- E-commerce, together with any information society-related services;
- Electronic signatures.

9. As far as the penetration of e-commerce is concerned, the establishment of the infrastructural and human conditions is essential, to which end the above governmental endeavours have been made. Some of the conditions may be regarded as already provided for, including the relatively developed mobile and public switched telephone network, the continuous improvement of ICT devices in the business sector and the existence of intellectual capital and its international competitiveness. Another favourable condition is that the establishment of the telecommunication infrastructure in Hungary has been accomplished in the past 10 years. Owing to a very purposeful development, major indices of telecommunication services have reached the European Union average. Digital data transmission, e-business and e-commerce are already used by Hungarian companies. However, the process for catching up is not moving fast enough and the participants of the economy — depending on the type and size of enterprises — are not equally affected. Although many large companies are equipped with state-of-the-art electronic communication networks, the number of small and medium-sized companies operating such networks is insignificant.

3. Situation of e-commerce in Hungary

10. Since official statistical data about the situation of e-commerce in Hungary will only be available in 2002, the present paper is based on surveys made by professionally recognized private market analysis companies and international organizations.

11. According to a survey performed by Bell Research and Thin Consulting market analysis companies, 70 per cent of Hungarian enterprises with more than 10 employees had Internet access in the first half of 2001. That value represents 100 per cent in the case of big companies, 80 per cent in medium-sized companies and 62 per cent in small companies. In 2001, enterprises with more than 10 employees spent about 14 billion forints (Ft) on their Internet connections. Some 45 per cent of companies with Internet access have their own home pages; however, that value amounts to only 32 per cent when the complete sphere of companies is examined. About half of those companies that do not have their own web pages plan to develop

them in 2002; therefore, penetration may reach 50 per cent by the end of the year. In most cases, enterprises use the Internet to e-mail, advertise their goods and services, surf the web and acquire market information. Interestingly, in Hungary small enterprises report making a higher proportion of their total e-purchase through the Internet than large companies. In spite of relatively high Internet penetration and a large number of web pages, only about 5 per cent of the companies surveyed are connected to e-commerce.

Product profiles on consumer e-commerce web sites, in 2000

12. As in other countries, book stores and CD shops were the first in Hungary to seize the opportunities provided by Internet by selling their products online. The scope of products is increasing all the time, and almost everything is available online: IT devices, technical equipment, food products, fast food, flowers, stationery, jewellery, communication devices, cinema and theatre tickets, car parts etc. Approximately 100 to 140 e-shops operate in Hungary. Most entrepreneurs had their e-shops designed by a popular content provider. Virtual shops and stores are operated by companies already performing commercial activities.

13. E-commerce in Hungary falls under the same category as the other commercial activities and is regarded as mail-order business. To date, decree No. 17/1999 (II.15) regulated remote commercial transactions and was based on EU guidelines. The decree is soon to be replaced by a new law regulating e-commerce, as indicated above.

Business-to-business e-trading in Hungary, 1998-2001

14. Business-to-business e-commerce in Hungary is relatively developed and online transactions are continuously increasing in terms of value. According to estimates, such e-commerce is expected to increase from Ft 135 billion in 2000 to Ft 387 billion in 2002. By 2004, the value of European e-trading is predicted to approach approximately US$ 350 billion, 1 to 2 per cent of which will represent the Hungarian e-commerce market. Several hundred companies are already registered as suppliers on the two currently existing Hungarian e-markets — marketline.hu and First Hungarian E-Market. However, transactions have not yet started so that no forecasts are available about future e-trading. Owners of the two markets comprise multinational telecommunication, system development, information equipment and system suppliers. It is, however, a characteristic feature of business-to-business activities that they do not take place on the open market but are conducted between multinational companies as well as companies and banks selected on the basis of conventional quality criteria. A good example is General Electric, with considerable sales in Hungary, which is planning to perform an increasing proportion of its purchases by such means.

Business-to-consumer e-trading in Hungary, 1998-2001

15. Business-to-consumer e-commerce in Hungary is rather underdeveloped. In addition to a low communal Internet penetration, the main reason for this lies in the lack of confidence in online modes of payment and in the uncertainty of deliveries. The value of business-to-consumer e-commerce in 2000 was about Ft 171 million, less than 0.1 per cent of total retail trade turnover. The first business-to-consumer

sales in Hungary were of books, CDs, airline tickets, cinema tickets, IT and stationery products. Returns on online sales are extremely low for the time being.

16. Based on the data supplied by Carnation Consulting, a dynamically developing but (in terms of final value) still hardly significant turnover can be expected. Commercial activities in banking and securities are not included in the data. The preferred mode of payment is cash on delivery on more than 80 per cent of the sites. Some 94 per cent of suppliers uses the Hungarian post for deliveries to the customer, while 1.4 per cent of the adult population (based on interviews) are happy to use deposit and credit cards for online shopping and 3.8 per cent of respondents have already made purchases through the Internet. The Hungarian business-to-consumer market is dominated by big companies that have sufficient financial resources and can therefore afford to invest in such business and establish their future presence in this special market. The first online broker companies appeared on the scene in 1998, all owned by independent local financial groups. The low number of Internet users and the lack of investments have been an impediment to the growth of online invested funds, and the number of accounts is still below 10,000.

Use of bank cards

17. By the end of 2000, 4.5 million bank cards were in use; in that respect Hungary is ranked third among the Central and Eastern European countries — every fourth adult has a bank card. But the country is still cash-oriented and 85 per cent of bank transactions involve drawing cash. Nevertheless, business-to-consumer commerce is rendered possible as far as bank cards are concerned, even if Hungarians remain distrustful of online shopping for the time being. A survey conducted by Europay and MasterCard found that only 30 per cent of Hungarians trust that banks will handle their personal data confidentially. Also, one fifth of Hungarian Internet users doubt that their personal data disclosed in the course of online shopping are safe.

4. Major international issues of development

18. The difficulties of development are evident in the complexity of the phenomenon of e-commerce, its development rate, the vagueness of its conceptual and classification system, and the difficulties of meeting the increasing requirements as a result of globalization for the international comparability of data. Based on our experience, the following problems of methodology are encountered by statisticians participating in the development:

- Measurement of e-commerce is more complex compared to conventional commerce. Definitions must differentiate between processes completed electronically based on how closely they are related to concrete commercial transactions, and must consider the concepts of e-transaction, e-commerce, e-trading, e-business. On the other hand, definitions must also consider the conceptual scope of e-commerce and the means through which it is mediated (Internet, Extranet, EDI, EDI via Internet, e-mail, WAP), as well as those participating in the process on the basis of the direction of connections (business to business, business to consumer, business to government);
- Although there is an urgent and global requirement for the measurement of e-commerce, the penetration and development levels of the phenomenon to be measured show considerable differences among countries. Apart from a few

countries that produce outstanding penetration indices (United States of America, Japan) the relevant indices of OECD countries and EU member States are unremarkable, and e-commerce is hardly measurable at all in Central and Eastern European countries;

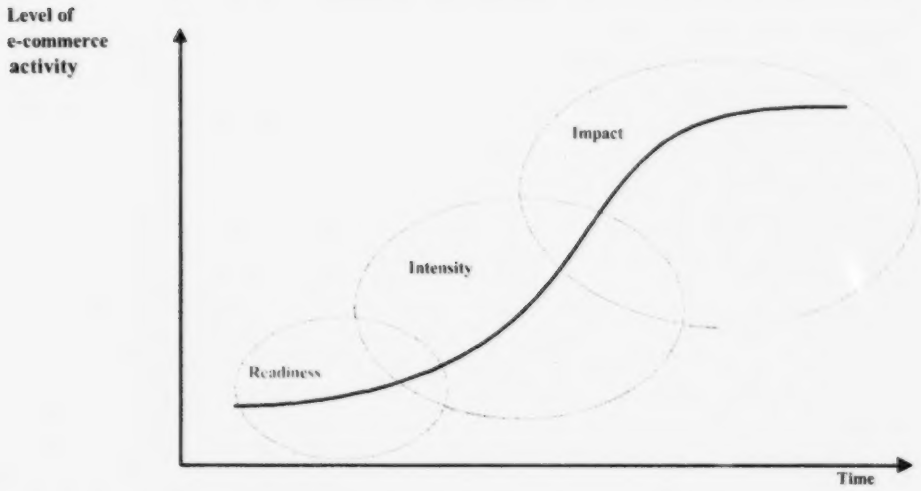
- No new internationally accepted conceptual and classification system has yet been developed, although the definition process is already in an advanced state. Recommendations for the most important definitions (e-business, e-trading, e-commerce, e-transaction) have been completed as a result of the work accomplished by experts of the OECD Working Party on Indicators for Information Society and the Eurostat Working Group on Information Society Statistics, and their alternatives for compromises have been accepted as well.

19. In addition to the difficulties of development, the results of the outstanding development work carried out in the workshops of the OECD Working Party and Eurostat Working Group must also be mentioned. Their impacts are already very tangible in the process of drafting definitions and classification system revisions associated with the ICT sector, the content sector and e-commerce, as well as in the creation of sample questionnaires and the organization of samplings. Those international development workshops made it possible for Hungary and other Central and Eastern European candidate countries to be involved in common activities as equal parties and to obtain the information and experience that is indispensable for development. Those relationships have promoted the development of the Central Statistical Office to an extremely high level.

5. Hungarian answers to questions

20. The first development decision concerning the measurement of e-commerce was to define the phases of e-commerce penetration and development in Hungary.

S curve demonstrating the development phases of e-commerce



Source: OECD.

21. International development differentiates between three characteristic development phases:

(a) Readiness: the development of e-commerce-related readiness and receptiveness;

(b) Intensity: the start of intensive activity;

(c) Impact: the manifestation of the impact of the activity.

22. Difference indices are emphasized for the measurement of various phases, as follows:

(a) Readiness: the number of Internet service providers, telecommunication service providers, telephone lines and access possibilities to the Internet and Extranet, factors impeding e-commerce, advantages of e-commerce, number of employees with IT qualification, expenditures on e-commerce, number of Internet hosts;

(b) Intensity: the intensity and frequency of Internet use, expectations for Internet use, number and value of Internet transactions, penetration rates;

(c) Impact: impacts on the performance of the company, advantages of e-commerce.

23. Based on the above, project specialists participating in the development of the Central Statistical Office decided at the time of compilation of the questionnaire that Hungary is basically in the first development phase; however, development has arrived to a point where the intensity indices have to be integrated already so that the first signs of the intensity phase could be measured by the time the conduction of the first survey falls due. Therefore, when compiling the questionnaire the emphasis was, in the first place, put on the measurement of readiness, and in the second place on the measurement of intensity, whereas the measurement of impacts has been deemed by us as a further step of development. It was exactly the economic importance of the initial phase and penetration that made us conclude that the process reached the most advanced state in the business sphere and, owing to its expected impacts, it is right here that measurement becomes most urgent, therefore these initial surveys have to target the business sector.

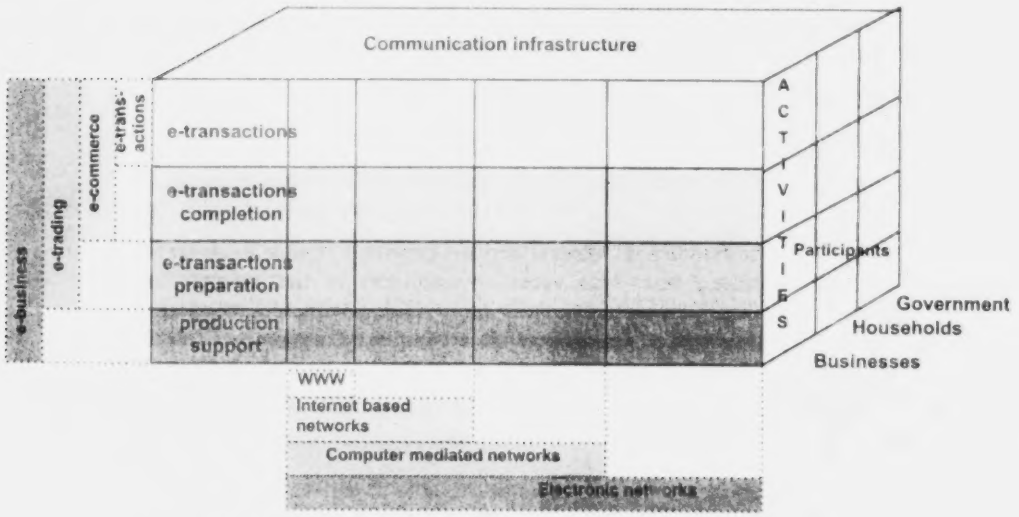
24. At the time of making our decision about the second important definition, only definition recommendations were made available to us. On the basis of the recommendations, the process has three important dimensions, therefore we had to make a decision about the following three dimensions at a time for the compilation of the questionnaire:

(a) Scope of activities: what portion of e-process should be covered by the survey (e-transaction, e-commerce, e-trading, e-business);

(b) Scope of communication of infrastructure: how many of the possible means mediating the activities should be included in the definition (Internet, Extranet, EDI, EDI through the Internet, e-mail, WAP);

(c) Scope of participants: which connection types of trading should be covered by the survey according to the direction of the connection (business to business, business to households, business to government)?

Activities and communication infrastructure: definition categories



Source: OECD.

Scope of activities

25. In conjunction with our project specialists, we agreed that since we are at the beginning of the process and presuming that penetration direction will follow a course from the simpler to the more complicated ones, we assumed that simpler processes should be measured first after which, in the following phases of development, we should proceed to the measurement of more complicated processes. Definition recommendations of OECD assisted us in making a decision about the ranking of the listed concepts from the simplest to the most complicated ones (e-transaction, e-commerce, e-trading, e-business). The above concepts had the following contents:

- e-transaction: order, purchase, sale;
- e-commerce: e-transaction + invoicing, payment, financing, delivery, after sales services;
- e-trading: e-commerce + marketing, advertising, market analysis;
- e-business: e-trading + purchase, inventory adjustment, production system management.

It appeared obvious that, realistically, the measurement of the simplest process has to be targeted in the first place.

Scope of communication infrastructure

26. Concerning the possible means which mediate activities and depending on the judgement about our level of infrastructure development, we had four alternatives to choose from (from the narrowest interpretation to the broadest one), namely, which e-transactions on what mediating means should be taken into account:

- www: only the active, public Internet web pages;
- Internet-based networks: www + Extranet, EDI over the Internet, WAP, web TV;
- Computer mediated networks: Internet-based networks + EDI, VAN;
- Electronic networks: Computer-mediated networks + fax, telephone network.

27. As opposed to the judgement of e-processes, in this case we felt that the development of the infrastructure and network penetration were more advanced in the business sphere than the penetration of e-processes mediated by them, and data acquisition about the ICT infrastructure was very important also in the initial phase, even if the e-processes mediated through them were hardly measurable. According to our international experience, networks independent of the Internet, such as EDI, play a very important role in e-transactions in many countries. In addition, we believe that by monitoring only Internet mediated transactions we will fail to notice the time when e-transactions outside Internet-based networks are started. That is why we decided, in this case, on the third more complicated stage of definition possibilities, i.e., we have extended our survey to all computer-mediated networks.

Scope of participants

28. Depending on the direction of connections, we had to make a decision about connection types to which our survey would be extended. In conjunction with the expert group, an unambiguous decision was made, namely that all types of connection possibilities should be included in the survey (business-to-business, business-to-consumer, etc.), even if they are aware of the fact that transactions of the business sphere are characterized only by the business-to-business connections for the time being.

29. Summing up the definition applied by us, we can establish that the definition is comprised by definition modules on the basis of international recommendations about the three dimensions (e-process, means mediating the activities and types according to connection direction).

30. Therefore, the scope of the survey can be summarized as follows: concerning the contents, every e-transaction is included (order, purchase, sale), together with any possible connection direction thereof (business-to-business, business-to-consumer, etc.), which is completed through computer-mediated networks (Internet-based networks + EDI, VAN) regardless of the fact whether the delivery and payment are performed online or in a conventional way.

6. Definition of miscellaneous characteristic features of the survey

31. While defining conceptual questions, we made a decision about some other important characteristic features of the survey. We have encountered the question whether we should treat e-commerce as an independent survey or combine it with other, already existing data acquisitions and also, what kind of sample we should use during the survey. The time of decision-making coincided with a parallel project about the survey of ICT use in the business sphere. Hungarian experts felt that such a survey should be conducted on the largest possible sample of national-economy level applied by CSO and the same would be required for the survey of e-commerce, as well. The choice fell on the sample of one of the structural business statistics

surveys of investment of CSO. The development made it clear for us that e-commerce is actually one of the manifestations of ICT use, therefore it was an obvious decision to treat the two questions as one survey. It could be established about our questionnaire (compared to the sample questionnaire tested by the latest test survey conducted by Eurostat in 2001) that it was in compliance with EU requirements. Being of modular structure, it comprises the three basic modules of the Eurostat sample questionnaire (use of ICT, use of e-commerce in purchases and use of e-commerce in sales). As far as the questions are concerned it can be stated that the majority of questions of each block have been included, and those left out for reasons of professional considerations have also been left out by such EU member States which are, otherwise, in the forefront both in terms of information society development and statistical measurements (Sweden, Finland, the Netherlands). Our questionnaire compiled according to the above has been subjected to the internal and external specialists of the office for expert opinion and a part of their comments have been incorporated for the improvement of the questionnaire (detailed particulars of data acquisition are contained in para. 36 below).

7. Experience gained during the test survey and the utilization thereof

32. For the testing of the questionnaire, we deemed it necessary to conduct a test survey in July 2001 among future data suppliers. The aim of the survey was to receive comments from data suppliers concerning the correctness, lucidity of questions and how easily the questionnaire can be filled in. Some 24 enterprises were included in the circle of data suppliers for the survey, so that all areas concerning the branch, size and location could be covered. Two enterprises were selected from each branch. Half of them represented enterprises with low net return on sales (1 to 20 million/month), whereas the other half represented companies with high (over 4 billion) net return on sales. Some 63 per cent of companies were located in the capital while 37 per cent in the countryside. An independent company was appointed to conduct the survey by way of personal interviews, employing external interviewing officers.

Problems

33. The survey helped to reveal several typical problems:

(a) It was apparent that some data suppliers (especially the small ones) had serious problems in differentiating between the Internet, EDI and EDI over the Internet, in having a clear definition of the concepts and identifying them in their records. This will cause a problem with those who do conduct e-commerce activities, however are either unable to provide data about revenues and costs realized through the various networks, or can do that only with considerable distortion;

(b) Similarly and in keeping with international experience, e-purchase proved to be the most problematic block in our survey as well. On the basis of feedback received, this is going to be the area where we are likely to receive the least number of answers suitable for evaluation owing to a low level of active participation. It is considered to be the biggest impediment that it does not appear in their accounts: purchases are often decentralized in case of companies with more than one premises, therefore a central assessment is not possible. Experience supports our decision to ignore separate questions about the limitations of purchases

and sales, and combine them for incorporation in our questionnaire, as we considered the level of activity here rather low and assumed that limitations were similar for both activities;

(c) In the case of the e-sales block, the requirement for an e-commerce limit value came up several times. Since the e-commerce activity level is very low, with many data suppliers, limit values have to be decided above which turnover should be reported, and under which it could be ignored. If no limit values are set we might run the risk of losing data because data suppliers will arbitrarily decide to ignore their turnover which, otherwise, might not be ignorable. In our opinion, internationally accepted limit values would be necessary for the sake of comparability; however, as long as no such limit values are available, we have to ask for every assessable data to be supplied on the first occasion to enable us to safely establish what can be regarded in present day Hungary as an ignorable value on the present level of activity;

(d) A decisive part of data suppliers deems it impossible to answer according to the breakdown of e-sales activities to directions (business-to-business, business-to-consumer, etc.), on the other hand, they find it possible to provide an answer for the total value;

(e) Feedback confirms that the majority of data suppliers is unable to differentiate between the concepts of various Internet channels (Internet, e-mail) in the course of measurement of sales; therefore, a part of e-mail traffic will unavoidably get mixed up in Internet traffic. And in spite of the fact that Eurostat recommendations suggest ignoring e-mail traffic (we can agree to that from a professional aspect), we preferred to further include the e-mail option separately among the possible answers. In our opinion, a better wording of the definition part of the guide will help to avoid the mixing up of those two concepts and we will also be able to produce data (without the e-mail component) in accordance with Eurostat recommendations;

(f) In the course of conducting the survey, a problem has been encountered whereby a lot of data suppliers were unable to provide answers to question groups aiming at the limitations of the use of Internet and e-commerce on the current levels of Internet penetration. Accordingly, we have clarified the question. By adding a few explanatory sentences, we managed to make it clear that even those who do not yet use the Internet and conduct no e-commerce activities should respond, since their replies would be regarded as reasons for abstaining from use rather than limitations to use, which provides equally important information for the assessment of limitations to penetration;

(g) In some cases, it became obvious to us that the definitions must be made more accurate to receive better quality data. This will be done in the relevant paragraphs of the guide;

(h) One significant result of the survey led us to realize that the structure of the questionnaire should be altered so that it followed the logic of the data supplier when filling it in. It became necessary to include in one group blocks that would be completed by an expert in one special area within a company. It was also required to indicate for each block which special department was authorized to provide answers to a given group of questions. Since the cooperation of several special areas is required owing to the complexity of the questionnaire, the above-mentioned

indications will facilitate the coordination of the completion of the questionnaire within the company. All necessary alterations have been incorporated in the questionnaire on the basis of recommendations received from data suppliers.

Findings

34. The findings of the survey can be summarized as follows:

- Owing to the shortcomings in the required level of information culture, small enterprises will face huge problems when attempting the proper completion of the questionnaire, especially those that are too small to employ an independent IT specialist;
- Questions should be further clarified for small enterprises that are inactive in the areas to be surveyed and are unable to provide answers to certain questions and blocks;
- The number of questions should be reduced and their clarity improved, and some definitions need further clarification;
- Questionnaire blocks should be adjusted according to the logic of data suppliers filling them in.

Future developments

35. Further tasks of development are:

- We would like to maintain our intensive participation in the international development activities of the working groups of OECD and Eurostat; any new results of those activities will be continuously adapted;
- We intend to further enhance the user-friendly character of the questionnaire. As an experiment, we plan to divide the guide partly or wholly, and depending on which block they belong to, we will insert explanatory parts in the relevant blocks in order to provide easy access to background information needed for filling in the questionnaire;
- In line with the contents of development of e-commerce in Hungary, we will make another step forward to monitor e-activity categories (e-commerce, e-trading, e-business), whose contents are continuously growing;
- The questionnaires have been subjected to the county directorates of the Central Statistical Office to obtain their expert opinion. That process has been completed recently. As their data recording and controlling activities have a considerable impact on data quality, several of their useful comments will be taken into account when further developing the questionnaire. Due to the conceptual novelty of the questionnaire and its strong demand for IT-related information, we must face a new task that is completely different from any previous questionnaires to date; therefore, the personnel employed in the directorates must be thoroughly prepared.

36. The particulars of data acquisition are as follows:

1. Title of data acquisition.

   Report on the inventories and application of information and communication devices

2. Subject of data acquisition.

   Survey on the inventories of information and communication devices, the changes in their values, the proportion of access to such devices and the situation of e-commerce in Hungary

3. Type of data acquisition.

   Questionnaire-based survey

4. Reference period.

   The data acquisition surveying the inventories and application of information and communication devices is conducted annually, data refer to the year under survey

5. The sample.

   All enterprises with more than 19 employees are data suppliers; enterprises with less than 20 employees are included in the survey. The source is the Register of Economic Organizations; enterprises are selected for data supply by means of a random stratified sampling procedure. Altogether, 23,564 enterprises have been selected. Branches A through O according to the Hungarian activity classification TEAOR are surveyed

6. Mailing of the questionnaires.

   The questionnaires and accompanying guides for completion are posted in December 2000

7. Deadline for returning the questionnaires.

   The enterprises return the questionnaires by post by 31 March 2002 at the latest

8. Reminder.

   If enterprises selected for data supply fail to return the questionnaire by the specified deadline, they will be reminded by telephone about the expiry of the deadline

9. Access to data.

   The processed data of the questionnaire will be published in a periodical, which is expected to be issued at the end of 2002.

United Nations E/CN.3/2002/25

Economic and Social Council

Distr.: General
21 December 2001

Original: English

Statistical Commission
Thirty-third session
5-8 March 2002
Item 7 (e) of the provisional agenda*
Activities not classified by field: coordination of development indicators

Harmonization of development indicators

Report of the Secretary-General

Summary

The present report was prepared at the request of the Statistical Commission at its thirty-second session.[a] It describes the work undertaken by the United Nations Statistics Division in support of the implementation of Economic and Social Council resolution 2000/27 on basic indicators in the context of the follow-up to global conferences. In particular, the report focuses on the statistical implications of the United Nations Millennium Declaration follow-up process. The report briefly describes work undertaken to define indicators to measure the "global partnership for development", and suggests priority work areas for the United Nations Statistics Division for the year 2002/03. The Commission may wish to comment on the proposed work programme and priorities.

[a] See *Official Records of the Economic and Social Council, 2001, Supplement No. 4* (E/2001/24), chap. I, sect. A.

* E/CN.3/2002/1.

01-72193 (E) 070202

Contents

		Paragraphs	*Page*
I.	Follow-up activities to Economic and Social Council resolution 2000/27	1–5	3
II.	Indicators to follow-up the implementation of the United Nations Millennium Declaration	6–10	4
III.	Proposed work programme of the United Nations Statistics Division for 2002/03	11–15	4
IV.	Points for discussion	16	5
Annex			
	Millennium development goals		6

I. Follow-up activities to Economic and Social Council resolution 2000/27

1. In the past year, the work of the United Nations Statistics Division in the area of statistical indicators has been guided by Economic and Social Council resolution 2000/27 on basic indicators for the integrated and coordinated implementation of and follow-up to major United Nations conferences and summits at all levels. The resolution addresses the following four broad themes: (a) the need for statistical capacity-building; (b) the technical review of existing conference indicators and efforts to define a limited set; (c) the need for so-called "means of implementation" or "global partnership for development" indicators; and (d) the promotion of networking. The Council requested the Secretary-General to report to it on the implementation of the resolution at its substantive session of 2002.

2. The issue of statistical capacity-building will be discussed in detail under agenda item 6 (see also E/CN.3/2002/18 and E/CN.3/2002/19). With respect to the technical review of conference indicators and the efforts to define a limited set, the Division has supported the work of the Friends of the Chair created by the Statistical Commission at its thirty-second session. To ensure country ownership and participation, a special outreach effort was undertaken throughout the period in which the Friends of the Chair actively deliberated in order to keep national statistical offices around the world informed. As a consequence, a large number of national experts was involved in the various thematic subgroups. The final report of the Friends of the Chair is contained in document E/CN.3/2002/26, and contains a number of specific recommendations. Detailed technical descriptions of individual indicators were prepared by the Division, in close cooperation with country experts, and can be found on the Division web page at: http://esa.un.org/unsd/indicatorfoc/.

3. Concerning the indicators of "means of implementation", the underlying concern of the Council was a balanced approach to monitoring conference commitments. Whereas developing countries committed themselves to undertaking the necessary efforts to achieve the international development targets, the industrialized countries committed themselves to provide the necessary enabling environment. The Council stressed the need to further develop such indicators for the global partnership for development in order to measure primarily development assistance, debt relief, foreign direct investment, trade conditions and technology transfer.

4. With the help of a consultant, the Division was able to move forward the work on means of implementation indicators. The objectives of the consultancy was to analyse United Nations conference documents, in particular the preparatory documentation for the International Conference on Financing for Development, to be held in March 2002 in Mexico, and to describe the most important means of implementation and their corresponding quantitative indicators, identifying availability and vacuums. Also, the quality of available indicators on development assistance, debt relief etc. was to be examined by conducting a technical evaluation. Some recommendations for priority indicators and areas of possible future work were to be included in the final consultancy report, which should be finalized by the time the Statistical Commission meets and will be made available to the Commission as a background document.

5. With respect to the promotion of networking, the Division has conducted an active information campaign, using national, regional and inter-agency forums, to bring Council resolution 2000/27 to the attention of statistical experts and to enlist support for the work of the Friends of the Chair on indicators. At the thirty-fifth session of the ACC Subcommittee on Statistical Activities, held in Vienna in September 2001 (see E/CN.3/2002/29), United Nations sister agencies were encouraged to participate with their expertise in the technical evaluation on the Division web site. The Division has also continued its partnership with the United Nations Development Group (UNDG) and will participate in a review of the common country assessment indicator framework, which is used by the United Nations funds and programmes at the country level for United Nations programming purposes. The purpose of the review is to bring the common country assessment indicator framework into line with the millennium development goals (see sect. II below) and to reflect practical experience gained with the use of the framework over the past two years. The key interest of the Division is to document good practices in the

area of involving national statistical systems in country assessment processes.

II. Indicators to follow-up the implementation of the United Nations Millennium Declaration

6. In its resolution 55/2, the General Assembly adopted the United Nations Millennium Declaration, which will determine the agenda for the United Nations in the years to come. The Declaration was signed by 145 heads of state and government. In the field of social and economic development, specific targets were set for key policy areas, such as poverty eradication, which are to be met by the year 2015. Moreover, the General Assembly requested an assessment on a regular basis of progress towards the implementation of goals of the Millennium Declaration.

7. The United Nations Statistics Division, together with the United Nations Development Programme (UNDP) in its capacity as the Chair of UNDG, will cooperate in preparing the quantitative assessments on developmental goals that will be required for the annual reports to the General Assembly. The Division will provide the statistical basis for a review of global process, thereby utilizing global statistical sources and analysis from the United Nations system. UNDG, through its United Nations country team network, will assist countries in preparing national reports on progress towards the goals of the Millennium Declaration.

8. In summer 2001, the Executive Office of the Secretary-General convened an ad hoc expert group meeting, consisting of experts from the United Nations system, the Bretton Woods institutions and the Organisation for Economic Cooperation and Development (OECD). The purpose of the meeting was to harmonize the goals of the Millennium Declaration with the international development targets previously promoted by the OECD Development Assistance Committee, in close cooperation with the Bretton Woods institutions and the United Nations system; to consider relevant indicators; and to confirm respective responsibilities at both the global and country levels for monitoring and reporting. The resulting framework of eight goals, 18 targets and 48 indicators — the millennium development goals (see annex) — was included in the report of the Secretary-General on a road map towards the implementation of the Declaration (A/56/362).

9. Most of the indicators of the millennium development goals are currently compiled on a regular basis by the responsible international organizations. The Division is currently reviewing those data for periodicity, consistency and reliability. The Division has also kept the Friends of the Chair abreast of developments, in particular concerning the suggested indicators. Upon review, the Friends of the Chair included most but not all of the indicators in its priority tiers 1 to 3.

10. The benchmark year adopted for trend analysis is 1990. All available data are being included in the Division's common database (http://unstats.un.org), where they are fully accessible to national and international statistical services, Governments and the public. In compiling those data, complete documentation is also being collected by the Division. All the source offices will be asked to comment and make available information on periodicity of series relative to the monitoring and reporting timetable, methodological documentation, available data evaluation studies etc. Partner agencies are asked to make sure that data are based on a reliable and documented national source. An expert meeting, to be convened by the Division in March 2002, is expected to address remaining conceptual, methodological and source questions.

III. Proposed work programme of the United Nations Statistics Division for 2002/03

11. The proposed future work programme of the Division with respect to indicators will centre on the following elements: (a) preparation of the Council report and debate on indicators, including follow-up to a possible Council resolution; (b) follow-up to the recommendations of the Friends of the Chair; (c) continued technical support of the millennium development goals indicator process; (d) focus on statistical capacity-building to support countries in the compilation of key indicators.

12. With respect to the substantive session of 2002 of the Council, the Division will prepare the mandated report on the implementation of Council resolution 2000/27. Key elements of the report to the Council will

be the decisions of the Statistical Commission, in particular with respect to the recommendations of the Friends of the Chair.

13. The recommendations of the Friends of the Chair, insofar as they are endorsed by the Commission, will require an analysis of how to implement them. The Division will prepare a plan, specifying actions, actors and timetables, and will report back to the Commission in 2003 on progress in implementation.

14. The Division will coordinate efforts in the United Nations system to provide a solid database for the analysis of progress towards the millennium development goals. It will facilitate expert dialogue to solve remaining methodological issues. In order to ensure transparency, the millennium development goals database on the Division web site will be updated continuously. In fact, it is proposed that a print publication on basic indicators, which was originally planned for the 2002-2003 programme biennium, be replaced with the electronic dissemination of up-to-date indicator information via the Division web site.

15. Since the discussion of a limited list of key indicators is converging to at least a temporary consensus, attention should shift to common efforts to build the necessary national statistical capacity to actually compile those key indicators. The meta-data web page prepared by the Division, in close cooperation with country experts, will serve as useful technical reference material. As a first step, a thorough analysis of the data gaps and the means needed to close them will be required. The Division is already committed, under its Association of South-East Asian Nations (ASEAN) programme, to work with the ASEAN countries over the next year on a common subregional indicator framework. A publication at the end of that project is expected to contain an analysis of steps needed to improve data availability in the subregion for key indicators. The Division will also continue its partnership with UNDG, supporting selected United Nations country assessment exercises and advising UNDG on how the statement of data gaps can lead to renewed efforts of United Nations country teams to strengthen statistical capacity in countries.

IV. Points for discussion

16. The Commission may wish to comment on the proposed work programme of the Division in the field of indicators.

Annex

Millennium development goals*

Goals and targets	*Indicators*
Goal 1. Eradicate extreme poverty and hunger	
Target 1. Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day	1. Proportion of population below $1 per day
	2. Poverty gap ratio (incidence x depth of poverty)
	3. Share of poorest quintile in national consumption
Target 2. Halve, between 1990 and 2015, the proportion of people who suffer from hunger	4. Prevalence of underweight children (under five years of age)
	5. Proportion of population below minimum level of dietary energy consumption
Goal 2. Achieve universal primary education	
Target 3. Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling	6. Net enrolment ratio in primary education
	7. Proportion of pupils starting grade 1 who reach grade 5
	8. Literacy rate of 15-24-year-olds
Goal 3. Promote gender equality and empower women	
Target 4. Eliminate gender disparity in primary and secondary education, preferably by 2005, and to all levels of education no later than 2015	9. Ratio of girls to boys in primary, secondary and tertiary education
	10. Ratio of literate females to males of 15-to-24-year-olds
	11. Share of women in wage employment in the non-agricultural sector
	12. Proportion of seats held by women in national parliament
Goal 4. Reduce child mortality	
Target 5. Reduce by two thirds, between 1990 and 2015, the under-five mortality rate	13. Under-five mortality rate
	14. Infant mortality rate
	15. Proportion of 1-year-old children immunized against measles

* Previously issued as A/56/326, annex.

Goals and targets	*Indicators*
Goal 5. Improve maternal health	
Target 6. Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	16. Maternal mortality ratio
	17. Proportion of births attended by skilled health personnel
Goal 6. Combat HIV/AIDS, malaria and other diseases	
Target 7. Have halted by 2015 and begun to reverse the spread of HIV/AIDS	18. HIV prevalence among 15-to-24-year-old pregnant women
	19. Contraceptive prevalence rate
	20. Number of children orphaned by HIV/AIDS
Target 8. Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases	21. Prevalence and death rates associated with malaria
	22. Proportion of population in malaria risk areas using effective malaria prevention and treatment measures
	23. Prevalence and death rates associated with tuberculosis
	24. Proportion of tuberculosis cases detected and cured under directly observed treatment short course
Goal 7. Ensure environmental sustainability[a]	
Target 9. Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	25. Proportion of land area covered by forest
	26. Land area protected to maintain biological diversity
	27. GDP per unit of energy use (as proxy for energy efficiency)
	28. Carbon dioxide emissions (per capita) [Plus two figures of global atmospheric pollution: ozone depletion and the accumulation of global warming gases]
Target 10. Halve by 2015 the proportion of people without sustainable access to safe drinking water	29. Proportion of population with sustainable access to an improved water source

Goals and targets	*Indicators*
Target 11. By 2020 to have achieved a significant improvement in the lives of at least 100 million slum dwellers	30. Proportion of people with access to improved sanitation 31. Proportion of people with access to secure tenure [*Urban/rural disaggregation of several of the above indicators may be relevant for monitoring improvement in the lives of slum dwellers*]
Goal 8. Develop a global partnership for development[a]	
Target 12. Develop further an open, rule-based, predictable, non-discriminatory trading and financial system Includes a commitment to good governance, development, and poverty reduction — both nationally and internationally	[*Some of the indicators listed below will be monitored separately for the least developed countries (LDCs), Africa, landlocked countries and small island developing States*] **Official development assistance**
Target 13. Address the special needs of the least developed countries Includes: tariff and quota free access for least developed countries' exports; enhanced programme of debt relief for HIPCs and cancellation of official bilateral debt; and more generous ODA for countries committed to poverty reduction	32. Net ODA as percentage of OECD/DAC donors' gross national product (targets of 0.7% in total and 0.15% for LDCs) 33. Proportion of ODA to basic social services (basic education, primary health care, nutrition, safe water and sanitation) 34. Proportion of ODA that is untied
Target 14. Address the special needs of landlocked countries and small island developing States (through the Programme of Action for the Sustainable Development of Small Island Developing States and the outcome of the twenty-second special session of the General Assembly)	35. Proportion of ODA for environment in small island developing States 36. Proportion of ODA for transport sector in landlocked countries
Target 15. Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term	**Market access** 37. Proportion of exports (by value and excluding arms) admitted free of duties and quotas 38. Average tariffs and quotas on agricultural products and textiles and clothing 39. Domestic and export agricultural subsidies in OECD countries 40. Proportion of ODA provided to help build trade capacity **Debt sustainability** 41. Proportion of official bilateral HIPC debt cancelled 42. Debt service as a percentage of exports of goods and services 43. Proportion of ODA provided as debt relief 44. Number of countries reaching HIPC decision and completion points

Goals and targets	*Indicators*
Target 16. In cooperation with developing countries, develop and implement strategies for decent and productive work for youth	45. Unemployment rate of 15-to-24-year-olds
Target 17. In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries	46.[a] Proportion of population with access to affordable essential drugs on a sustainable basis
Target 18. In cooperation with the private sector, make available the benefits of new technologies, especially information and communications	47. Telephone lines per 1,000 people 48. Personal computers per 1,000 people [Other indicators to be decided]

[a] The selection of indicators for goals 7 and 8 is subject to further refinement.

United Nations E/CN.3/2002/26

Economic and Social Council

Distr.: General
18 December 2001

Original: English

Statistical Commission
Thirty-third session
5-8 March 2002
Item 7 (e) of the provisional agenda*
Activities not classified by field: coordination of development indicators

Report of the Friends of the Chair of the Statistical Commission on an assessment of the statistical indicators derived from United Nations summit meetings

Note by the Secretary-General

In accordance with a request of the Statistical Commission at its thirty-second session,** the Secretary-General has the honour to transmit to the Commission the report of the Friends of the Chair of the Commission on an assessment of the statistical indicators derived from United Nations summit meetings. The report is contained in the annex to the present note. The Commission may wish to endorse the technical findings contained in the report and recommend that the report be transmitted to the Economic and Social Council.

* E/CN.3/2002/1.

** See *Official Records of the Economic and Social Council, 2001, Supplement No. 4* (E/2001/24), chap. I, sect. A.

01-70861 (E) 130202

Report of the Friends of the Chair of the Statistical Commission on an assessment of the statistical indicators derived from United Nations summit meetings

Executive summary

The present report results from a request from the Economic and Social Council to the Statistical Commission. It arose out of a concern about the large number of seemingly uncoordinated demands for statistical indicators to monitor a wide range of policy issues that had been agreed at various United Nations summits and major conferences. In its resolution 2000/27, the Economic and Social Council requested the Commission, as its authoritative technical advisory body, to:

- Provide leadership in the field of conference indicators;
- Conduct an in-depth technical analysis of conference indicators;
- Make recommendations regarding a limited list of conference indicators;
- Develop and recommend to the Council a mechanism of statistical review for future proposed indicators.

The technical assessment was carried out on more than 280 statistical indicators derived from United Nations summits and major conferences held over the last 10 years. Seven expert groups were established to cover the common division of policy (economics, health, education etc.) that is reflected in ministerial responsibility in most countries. The expert groups had members drawn from many countries. The indicators were assessed on technical criteria and the relevance to the policy goals. A web site has been created that contains all of the indicators and the technical assessment of each.

In response to the request for a limited list of conference indicators, we propose an indicator framework containing three priority tiers. Each tier contains about 50 statistical indicators. In addition, a further category contains indicators that would be useful for a more detailed understanding of any policy area. The framework is arranged to reflect the major policy areas referred to above. However, important additional policy areas cut across this arrangement and typically cut across government department policy responsibilities in many countries. Such policy areas include poverty, gender and child welfare. Indicators covering those issues are contained within the framework.

Also, there are areas in which the indicators need improvement or indeed simply do not exist and need to be developed (e.g., indicators for human rights and good governance). Those tasks were too extensive to undertake in the time available. However, we make recommendations to the Commission to establish processes to accomplish those tasks.

A correspondence between the proposed framework and the existing high-level indicator sets is provided.

The development of statistical indicators and the statistical capacity that allows higher standards to be met are dynamic. Initiatives exist within international agencies that will require the proposed framework to be reviewed if it is to remain relevant to changing needs. Hence, the framework must be kept under review, and we make

recommendations to achieve that and to improve coordination between international agencies.

Finally, we turn to the question of future summits and major conferences and the need to propose mechanisms that will allow further development of the framework in response to emerging needs. The existing arrangements for indicator development are clearly unsatisfactory. We recommend procedures to improve that situation.

Those recommendations are based on the recognition that the stakeholders in the indicator programme span policy officials and statisticians in both international organizations and Member States. Mechanisms are needed to ensure that all can play a full part in indicator development and priority setting. The process of turning a policy goal into a statistical indicator that is feasible to measure and technically sound should involve all stakeholders.

Another important issue is the level of statistical capacity needed for countries to support the information needs of national and global policies. Developing statistical capacity goes beyond providing financial and technical support from international donors that is narrowly focused on specific statistical production to monitor a specific global policy. It calls for more support for systemic development.

A further issue is the reconciliation of information needs for national and global purposes. In the long run, financial support for statistical programmes must depend upon national rather than international provision, which in turn depends upon national Governments using and valuing statistical information in support of policy development, policy monitoring and good public administration in general. Hence, it is essential that the national statistical system support national policy goals.

The report contains a series of recommendations that are intended to address those issues. In particular, mechanisms are proposed to ensure greater participation for Member States in the development and adoption of statistical indicators for global and national purposes.

Contents

		Paragraphs	Page
I.	Introduction	1–15	6
II.	Key issues	16–45	8
	A. Stakeholders	17–19	8
	B. National and international priorities	20–22	8
	C. Statistical capacity	23–30	9
	D. Response burden on countries	31–39	10
	E. Quality and technical properties	40–43	12
	F. Continuity and change	44–45	13
III.	Technical assessment and framework for indicators	46–92	13
	A. Expert groups and their task	48–51	13
	B. Criteria for selecting indicators	52–55	14
	C. Criteria for setting priority levels	56–60	15
	D. Indicators considered	61–65	16
	E. General and domain-related issues	66–86	16
	F. Indicator recommendations	87–92	20
IV.	Future processes	93–105	21
	A. New summits and major conferences and new indicator initiatives	96–104	21
	B. Technical improvements and new international standards	105	23
V.	Conclusion	106	23
VI.	Consolidated recommendations	107	23
	Development of indicators and maintenance of the indicator framework		23
	Production of indicators		24
	Technical and quality issues		25
	Statistical capacity		25
	Miscellaneous		25

Tables

1.	Hierarchy of statistical indicators, by domain and sub-domain	26
2.	Number of indicators, by domains and priority level	33
3.	Correspondence of recommended indicators to existing sets, by priority level	33

Acknowledgements

The present report depends heavily on the contributions generously made by a large number of individuals from across the world. People from 34 countries contributed. Members of various international agencies also made valuable inputs to the process. We wish to thank all who contributed. In particular, the chairpersons of the expert groups made an invaluable contribution and deserve special mention:

Demography:	David Pearce (United Kingdom)
Health:	Jennifer Madans (United States of America)
Environment and energy:	Hilary Hilier (United Kingdom)/ Bob Harrison (Australia)
Economy and poverty:	Rob Edwards (Australia)
Employment and labour:	Ian Macredie (Canada)
Education:	Scott Murray (Canada)
Other social:	Linda Sabbadini (Italy)

Finally, a significant burden fell onto the staff of the United Nations Statistics Division and we sincerely thank them for their support.

I. Introduction

1. In the last decade, United Nations summits and major conferences (averaging almost two per year) have covered a wide range of economic and social issues. Those conferences have resulted in declarations related to future goals and targets that have been endorsed by member States and are intended to improve the well-being of the world's population. Goals and targets call for a commitment to monitor progress towards them, and as a result indicators (usually statistical indicators) have been identified in relation to each goal. The intention is to monitor and report on them so that progress towards the declared goals and targets can be measured.

2. However, there is concern that that process has gone forward with too little coordination between officials concerned with the separate conferences in terms of the number and choice of indicators to be monitored. The conferences have varied considerably in terms of the number of resulting indicators (ranging from a handful or less to as many as 70 being identified from a single conference). In total, more than 280 indicators have been identified.

3. The perception is that that uncoordinated process has resulted in a plethora of indicators of different levels of importance in policy terms. Also, there is potential for confusion among users because of an apparent inconsistency and lack of coherence among the indicators. The ongoing addition of indicators has also resulted in a large demand for statistical information from each member State: a demand that has to be set alongside the demands for statistical information for national policy purposes. For countries with less well developed statistical infrastructure, that total demand can be disproportionate to the resources available to meet it.

4. Attempts have been made to distil core sets of indicators that might be afforded greater recognition and therefore higher priority. The Statistical Commission identified the Minimum National Social Data Set (MNSDS) (15 indicators). The Development Assistance Committee (DAC) of the Organisation for Economic Cooperation and Development (OECD), in cooperation with the United Nations, the World Bank and the International Monetary Fund (IMF), identified the international development goals (IDGs) (21 indicators); that set drew heavily on international summits up to 1995. The United Nations Development Group identified indicators to support the common country assessment, again based on an analysis of the requirements of United Nations summits (United Nations Development Assistance Framework (UNDAF)-common country assessment, 57 indicators). Similarly, the need to promote and assess sustainable development resulted in an additional set from the Commission on Sustainable Development (57 indicators). There are also the basic social services for all indicators (12 indicators). And the Friends of the Chair has been aware of work within the European Union on 35 structural indicators.

5. And the process goes on. While the present report was in preparation, the choice of statistical indicators to support the "millennium development goals" was announced (see A/56/326, annex: 48 indicators), constituting another high-level set of indicators that will be monitored.

6. The Economic and Social Council considered this question in 1999 and 2000, and there is a general recognition that better coordination is needed and that full participation and ownership by Member States was needed in all stages of indicator development. In its resolution 2000/27, the Council requested the Statistical Commission, as its authoritative technical advisory body, to:

- Provide leadership in the field of conference indicators;
- Conduct an in-depth technical analysis of conference indicators;
- Make recommendations regarding a limited list of conference indicators;
- Develop and recommend to the Council a mechanism of statistical review for future proposed indicators.

7. As a result, at its thirty-second session the Commission established a group of "Friends of the Chair" to consider the issues further and report thereon to the Commission at its thirty-third session, so that the Commission could in turn report to the Council at its substantive session of 2002.

8. The members of the group were:

Tim Holt (United Kingdom) (Chair)

Guest Charumbira (Botswana)

Claudia Cingolani (Italy)

Francisco Guillen (Mexico)

Hasan Abu Libdeh (Palestine)

Jil Matheson (United Kingdom)

Yue Renfeng (China)

Hussain Shakhatreh (Jordan)

Bounthavy Sisouphantong (Lao People's Democratic Republic)

Ken Tallis (Australia).

9. In order to carry out the required in-depth technical review, the group subdivided the 280 identified indicators into the following seven domains:

- Demography;
- Health and nutrition;
- Environment and energy;
- Economics and poverty;
- Employment and labour;
- Education;
- Other social indicators.

Seven indicators related to human rights and good governance were excluded from the framework because they were all qualitative in nature and no statistical indicators had been identified. We will return to that point in due course.

10. The domains represent major divisions of policy responsibility that are commonly reflected by separate ministries in many countries (economics, health, education etc.). In addition, there will be important cross-cutting policy areas, such as poverty, child welfare or gender, that are distributed across those domains.

11. We considered the requirement to make recommendations about a limited number of indicators, and following the discussion by the Commission at its thirty-second session, established a hierarchy of indicators containing three priority tiers and a category of "additional" indicators. The first tier contains statistical indicators that might be regarded as of the highest priority and are essential for broad monitoring; it includes a small number of indicators in each domain. The second and third tiers contain additional indicators that progressively add to the overall picture and include indicators that allude to additional policy priorities. A fuller description is given in section III below.

12. We are very aware of the need for countries to reconcile their statistical needs for national policy purposes with international requirements. The hierarchical structure offered is not meant to be mandatory or to impose a straightjacket on member States, although we think that all countries should be encouraged to compile all indicators within the first tier unless there are overwhelming national reasons not to do so. In our view, the second tier and many of the indicators in the third tier would be valuable in most countries. However, it is likely that countries with particular concerns or policy initiatives will wish to collect extensive statistics for some domains (including those in the additional indicator category) and less for others. Also, the statistical requirements for national policy purposes — in effect most of the output of the national statistical system — will probably go beyond the indicators identified in the framework. Nonetheless, the framework is intended to enable countries to assess their statistical priorities and to reconcile the statistics that are needed for national purposes in keeping with global requirements. As such, we hope that countries will find the framework useful.

13. For each domain, an expert group was established drawn from member States across the world. Some members of each expert group were official statisticians and others were more concerned with policy issues.

14. In addition, useful discussions were held with representatives of the United Nations Statistics Division, the United Nations Population Fund (UNFPA), the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Labour Organization (ILO), OECD and the World Bank, and we attended the thirty-fifth session of the ACC Subcommittee on Statistical Activities held in Vienna from 18 to 20 September 2001, at which an initial draft of our report was discussed.

15. As a further consultation phase, a draft version of the report was circulated to all national statistical offices, regional commissions and international agencies. It was also placed on the United Nations Statistics Division web site. The final version of the report takes into account the responses received to that consultation. Representatives of a number of international agencies also attended the meeting of the Friends of the Chair at which the draft report was effectively finalized. We acknowledge and thank all contributors, but the final responsibility for the present report rests with the Friends of the Chair.

II. Key issues

16. The request from the Economic and Social Council to the Statistical Commission and the terms of reference established for the Friends of the Chair reflect concern over the current process for identifying indicators. That concern includes the lack of coordination between stakeholders, insufficient involvement by Member States in the process and the lack of structure of the resulting indicator sets. A number of key issues need to be recognized and taken into account.

A. Stakeholders

17. Identifying statistical indicators for monitoring purposes is neither a pure policy nor a pure statistical issue. The basic expression of the policy goal must drive the monitoring requirement, but turning that expression into a statistical indicator that will be relevant, reliable and acceptable to the various stakeholders is a statistical function. The tension between the policy view of what is needed and the statistical view of what is feasible and technically sound should be resolved by joint determination.

18. A second stakeholder issue is that although the statistical indicators that are derived from United Nations conferences and summits are motivated by international needs, they are based on policy issues that must be reflected in the national policy agenda if the desired progress is to be achieved. However, there can be differences between national and international priorities, and the need to reconcile national and international priorities needs to be addressed.

19. A third stakeholder issue rests on the simple fact that most of the statistical indicators are derived from national statistical programmes, which are predominantly funded from national resources and reflect a range of user needs of which the international need is only one. National statisticians must try to respond to often disparate user needs within the resources available. Their ability to respond will depend heavily on the general level of statistical capacity in the country and the extent to which additional demands create a response burden on countries or whether existing statistical sources can be used or adapted to meet additional needs. Thus, national statisticians are stakeholders. Their expertise is different from statisticians working within international agencies and they have an important contribution to make to the process of developing statistical indicators.

B. National and international priorities

20. Relevance is a dominating requirement of statistical information. If statistics are not relevant to the policy need, they will not command the attention, or have the impact that they should. In particular, failure to meet national needs will undermine the requirement to develop sustainable statistical capacity since in the long term that must depend on national governmental funding and support. It will also undermine evidence-based policy as a basis for good governance and public administration within countries. From the United Nations perspective, that would as a result undermine the provision of statistical indicators for international monitoring purposes.

21. To some extent, the tension between national and international needs may be reduced if the statistical system is rich enough and flexible enough to support diverse needs. For example, a well designed household budget survey can estimate the proportion of the population below an international poverty standard and against a national poverty standard. In such cases, the conflict between national and international requirements is avoidable. In other cases, the resolution may call for additional resources — to collect a wider range of data or to fund larger sample sizes so as to meet competing needs. In our view, all efforts should be made to reconcile national and international needs so as to support both, which implies that countries should recognize the need to support international

needs and that international agencies should accept the need to support statistical activities focused on national as well as international needs. Investment in modular frameworks or analytical capacity that allows countries to exploit core sets of survey data for a variety of purposes would be valuable.

22. Thus, any rationalized set of indicators should be applicable (or readily adaptable) to both national and international priorities. In the time available, we have not been able to assess the question as comprehensively as we would have wished, although we have drawn upon the experience of the members of the expert groups and international agencies. In our view, that assessment should be done more systematically before the proposed framework of indicators and their priority levels are "set in stone". The recommendations that we make for the Commission to maintain the indicator framework will permit this.

C. Statistical capacity

23. The ability to produce consistent, reliable statistical information on an ongoing basis requires a sustained statistical capacity. That requirement is not a one-off capability but implies the ability to produce statistics on a regular basis and with the timeliness needed.

24. In particular, a sound statistical infrastructure is essential, by which we mean:

- Underpinning systems to create and maintain sampling frames for business and household surveys;
- A critical mass of ongoing statistical activities: survey design, data collection and analysis in order to nurture the basic professional skills;
- The technical and professional capacity to maintain and develop systems in accordance with international standards as they are developed over time;
- A developed analytic capacity;
- Adequate statistical frameworks and information technology (IT) infrastructure;
- Good management to make the most use of the resources that are available;
- All of the above embedded within a wider legal and administrative structure that recognizes the importance of good statistical information and the need to sustain the conditions in which it can be produced with high professionalism and integrity, consistent with the United Nations Fundamental Principles of Official Statistics.

25. Without that core capacity and the ongoing resources to support it, neither the statistical needs of the country nor those of the international community will be reliably served. In many countries, adequate ongoing financial support is a key issue. Where that core capacity is fragile, the sporadic provision of additional funds to satisfy a particular statistical need will be much less effective and cannot substitute for what one might term "statistical sustainability".

26. Statistical indicators need to be viewed as the end product of often complex statistical infrastructures that are essential if the indicators are to be produced with adequate quality. Population estimates, for example, which are fundamental to many indicators that are expressed as rates or per capita estimates, depend on periodic censuses to provide benchmarks and on systems of vital registration or other sources to permit inter-censal population estimates. Many social statistics depend upon social surveys that need sustained expertise if they are to be well conducted. Complex measures, such as gross domestic product (GDP), require an extensive framework of business surveys, administrative sources and underpinning infrastructure if the statistics are to be of adequate quality. Too much emphasis has been placed on the indicators (the end product) and too little on the statistical sources and infrastructure that underpin them. The majority of aid agencies and donors are perceived to provide aid to conduct studies needed to fulfil their objectives without considering national capacity-building.

27. Countries and international donors need to recognize that each statistical initiative depends on the core statistical capacity within the country, and that internationally sponsored activities must contribute to that sustainable capacity. It is essential that those activities support both national and international statistical needs rather than being perceived as being driven by international goals alone. The effective use of statistical information within national Governments needs to be promoted and the Council and international donors have an important role to play if the statistical

system is to command consistent financial and political support from the national Government of the day.

28. It is important to note that donor resources are often tied to specific international objectives while being characterized as supporting statistical capacity-building. While such resources may provide financial support, there is a frequently expressed concern that such programmes may consume the statistical expertise available within the country and thus distort the overall priorities. If that is so, it represents not statistical capacity-building but statistical capacity diversion. It is important that donor-supported programmes genuinely add to the sustainable resources within the country.

29. We believe that an indicator of statistical capacity should be developed and monitored. That measure could be based on the level of regular statistical activity within a country, an ongoing critical mass of survey-taking and statistical analysis, and the existence of basic elements of statistical infrastructure. A task team within the Partnership in Statistics for Development in the Twenty-first Century (PARIS 21) initiative has that work in hand, building on the IMF Data Quality Assessment Framework. One concern is that that initiative and the resulting indicator should not be dominated by economic statistics but should span the wide range of statistical areas covered by national statistical systems and the indicators considered in the present report. Also, the membership of the task force has no country representation. **We recommend that those concerns be remedied and that the eventual proposals be made to the Commission.**

30. Building and monitoring statistical capacity is a systemic issue. In our recommendations, we have taken account of that fact in several ways. First, we have focused on indicators (especially in the first two tiers of the framework) that should be feasible for most countries to compile (perhaps initially with statistical assistance but as part of the ongoing statistical programme in due course). Second, we propose a systematic assessment of the availability and frequency of indicators in the priority categories. Third, we have in some cases defined a sequence of successive approximations to ideal indicators that countries might compile as their statistical capacities develop. We recommend that approach for the maintenance and development of the framework.

D. Response burden on countries

31. A frequently heard concern is that the uncoordinated demand for a wide range of statistical indicators places a burden on national statistical offices that cannot be responded to, or that such a burden is incompatible with the national statistical needs and diverts scarce resources (skills as well as finance) from other priorities. National statistical offices generally wish to respond to all expressed needs as long as they are technically well founded, but the concern is that they cannot be met within the resources (both financial and skills) available.

32. International agencies have taken steps in recent years to align their statistical requirements and improve coordination when requesting statistics from countries, particularly by establishing joint data-collection mechanisms. That process should continue with a view to further streamlining the demand on countries.

33. There are two solutions to the general problem of burgeoning demand: to reduce demand or to increase the resources and hence statistical capacity. The latter would serve user needs better and is preferred, but in the short term both are needed.

34. In terms of managing demand, the following are helpful steps:

- Reconciling international and national statistical requirements, which will reduce the burden;
- Establishing a hierarchical structure of statistical indicators so that countries may determine their priorities more systematically;
- Producing more guidance on best practice and measurement processes;
- Further coordination between international agencies on data needs and joint data-collection from Member States.

35. In terms of increasing resources and capacity:

- Increasing the funding available for the less well developed statistical offices is essential and will be needed on an ongoing basis. In the long term that must come from within the country, but in the short term it often comes about as a partnership between national Governments and international donors;

- A climate of support for the statistical system within the country will be developed only if national Governments see statistical information as essential in support of national policies and good governance. In seeking efficient and effective public administration, Governments need to view statistics as part of the solution rather than simply as an additional claim on public expenditure;

- Developing a core statistical infrastructure and a critical mass of professional and technical skills is essential;

- In the case of the donors, they must ensure that all statistical activities strengthen the sustainable statistical capacity and, by taking account of national needs, strengthen the value that national Governments place on statistics.

36. The resource implications for new statistical outputs may be very different in different countries and depend on the existing level of statistical capacity. From the lowest additional cost to the highest, one may set out a hierarchy of resource implications:

- In some cases, it is simply a question of analysing existing data in a different way in order to provide the required output. An analysis by sex is such an example, as long as the basic information on the subject's sex is available for each data record. In such cases, the resource requirement (assuming professional skills are available) is small;

- An approach more demanding of professional skills is the use of modelling, synthetic estimation and other analytical techniques applied to exploit existing data sources for new purposes. The financial cost may be low but the technical knowledge to produce high-quality outputs is significant;

- In other cases, the new requirement may call for a small number of additional items to be collected and analysed using an existing survey. The resource implications are a little higher but as long as the core statistical capacity is in place it is generally feasible to support such a requirement;

- More seriously, the new requirement may call for a substantial increase in the sample sizes employed. Regional and other subnational estimates that are often required for national purposes are a good example, estimates of population subgroups are another. Both can add significantly to the existing costs and the need for analytic skills;

- Even more seriously, the new requirement may call for an entirely new data-collection system, for example, a new household survey or a new business survey. That is generally an order of magnitude more demanding in terms of time for development, in terms of costs, including interviewer and data processing costs, and also in terms of diverting often scarce professional and technical skills from existing programmes to the new survey. In order to avoid that issue, there are examples of existing surveys becoming overburdened with competing and potentially conflicting data requirements to the extent that one must question whether they are manageable. Also, the burden on the respondents who participate in the survey is very severe;

- Where the primary data source is an administrative system, new needs may call for the system (or the underpinning software) to be redeveloped, which can be a major undertaking unless the administrative system is being redeveloped for other purposes, although for some statistical uses it may be the best long-term strategy for a statistical office;

- Finally, some new requirements may call for an infrastructure that simply does not exist in a particular country. For example, some administrative systems (e.g., vital registration) may be non-existent or in such poor state that their use for statistical purposes is impractical. Or measurement processes (for example, as are often used for some environmental indicators) may not exist. In such cases, the basic infrastructure must be established, which can be a long and expensive process.

37. In general, the better the core statistical infrastructure, the better a country can respond to new statistical requirements. If national and international goals are to be met a strengthening of the core will be required in many countries.

38. In particular, the statistical infrastructure to support estimates of GDP and vital statistics is particularly demanding and complex. Ideally, it requires both survey capability and access to effective administrative systems as data sources. Both are cornerstones of the whole indicator programme since many indicators make use of them.

39. **Hence we make the following interrelated recommendations:**

- **The identification of statistical indicators for monitoring purposes should involve both policy officials and statisticians, and each of those groups should draw upon international agencies and member States. We elaborate this recommendation in section IV below;**
- **The Economic and Social Council and international donors should recognize the need to support and develop core statistical capacity within member States, including statistical infrastructure, and all donor activity for statistics should recognize the need to address both national and international statistical requirements;**
- **Donor-supported programmes should genuinely add to the statistical capacity within the country rather than divert it;**
- **As part of that recognition, the Council and international organizations and donors should promote the use of statistics to support effective national policy development and good public administration;**
- **The initiative to develop an indicator of national statistical capacity through the PARIS 21 initiative should span social and economic statistics and be modified to involve member States, and final proposals should be made to the Commission;**
- **The United Nations Statistics Division should promote the development of standards and guidance on best practice for indicators, where needed;**
- **The international agencies should strive to improve the coordination of data collection from countries.**

E. Quality and technical properties

40. It is important that the chosen statistical indicators are relevant to their purpose and satisfy technical criteria. Measurement for statistical purposes is an exacting discipline, calling for specialist development. Definitions and concepts need to be as precise as possible, consistent with their intended use. The resulting statistics need to satisfy statistical quality criteria and conform to international standards, where established. The development of high-quality statistical indicators takes time, and may well require field tests and evaluation before suitable indicators can be developed.

41. Over the years, largely independent of the need to monitor conference goals, countries have developed suites of core statistics, such as population estimates, GDP or life expectancy, which have been developed through extensive processes over time; international guidelines exist to support best practice and the statistical properties are relatively well understood. As long as such indicators are relevant to conference goals, they are readily available for monitoring purposes. Nevertheless, even for such indicators, actual quality varies between one country and another, depending on the strength of the statistical infrastructure in each country and the basic statistical capacity.

42. But for new policy areas, such as human rights and good governance, no established statistical indicators exist. Their development will take time and the process needs to involve statisticians and policy officials.

43. An additional difficulty for some newly developed indicators is that targets related to future improvements from a baseline date may be agreed (for example, reducing by a third the incidence of a particular event within a period of 10 years). If the statistical indicator that is used to monitor that target is not widely available at the baseline time, then there is no base value from which to measure progress. There is no easy solution to that problem, but when such targets are adopted there is a need for the conference to recognize the need to support the development of

baseline measures. If not, it risks bringing discredit to the whole process of target-setting. **We recommend that the need for baseline measures be taken into account when targets are adopted that require change to be measured from a specific point in time.**

F. Continuity and change

44. For all statistics, there needs to be a regular process of review and development. As the economic and social environment change, so the statistics that are used to monitor development need to change if they are to capture the new situation and remain relevant. That is as true for statistical indicators that monitor conference goals as it is for all other statistics. If that process of review and renewal does not occur, statistical indicators will become less and less relevant. For global statistics, there is another reason for continuous development. The need to establish an indicator quickly may reasonably mean that technical standards are chosen to reflect the reality of what can be achieved in the short term. However, as statistical capacity develops the technical standards that one may apply to any indicator may be increased: definitions may be refined and the quality of the indicator at a global level improved. That process creates a tension between continuity over time and necessary change to improve quality and relevance, a balance that needs to be recognized and will often call for continuity, but there are established methods, such as statistical revisions, to address the need for consistency of time series.

45. **We recommend that:**

- **All statistical indicators be subject to periodic review and improvement;**
- **When such a review results in change, an approach be provided to support countries in moving to the improved indicator while maintaining continuity with the recent past.**

III. Technical assessment and framework for indicators

46. As a result of the United Nations conferences of the 1990s, a list of about 280 separate indicators was identified, on which the overwhelming majority of indicators were statistical in nature. That list was based on indicators derived from 15 global conferences reviewed in a 1999 report of the Secretary-General (E/1999/11). In consultation with the secretariat of the Economic and Social Council, the list was augmented to take account of the World Conference on Education for All (Dakar 2000) and a number of special sessions of the General Assembly held in follow-up to conferences (e.g., the fourth World Conference on Women, held in Beijing in 1995) up until March 2001. The list included indicators that were identified by cross-conference initiatives, such as the Minimum National Social Data Set, the United Nations Development Assistance Framework-common country assessment, basic social services for all and the international development goals (IDG). No other conferences were considered, but the 48 indicators linked to the millennium development goals (see A/56/326, annex) were included.

47. Those indicators cover a wide range of topics but do not include all the statistical indicators that have been identified as desirable by the United Nations and other international organizations: they only include indicators identified by United Nations summits and major conferences. Future meetings will surely identify new areas that require policy monitoring (see sect. IV below). Section III is essentially concerned with the 280 indicators identified.

A. Expert groups and their task

48. As noted above, the indicators were subdivided into seven domains and expert groups established for each domain (demography, health and nutrition, environment and energy, economics and poverty, employment and labour, education and other social).

49. The expert groups, with the support of staff of the United Nations Statistics Division, carried out a technical assessment of each indicator, which is available on the Division web site (http://esa.un.org/unsd/indicatorfoc/) and will be maintained in future. That source contains detailed definitions and specifications for each indicator. **We recommend that the Division web site be the definitive source of technical information on the indicators.**

50. The present report contains a summary of the findings of the expert groups. A background document entitled, "Technical assessment of statistical

indicators" has also been prepared to provide a more comprehensive picture of the work of the expert groups.

51. The expert groups identified sub-domains within each domain as being relatively self-contained separate policy areas. Indicators were allocated to one of three priority tiers:

- Tier 1: a small number of indicators were allocated to the first tier, containing indicators essential for broad monitoring and which all countries are encouraged to compile;
- Tier 2: the second tier contains indicators that add to the information contained in the first tier and which help to convey a fuller picture. Those indicators are likely to be vital for both national policy monitoring and internationally comparative purposes;
- Tier 3: the third tier of indicators is needed to gain a more comprehensive picture of the situation in any domain (depending on national circumstances).

Most of the remaining indicators were allocated to a fourth tier of additional indicators. Many of those would be valuable for portraying additional aspects of the domain and illuminating policy areas further. Some indicators were excluded if there were overriding technical deficiencies or if an alternative was preferred.

B. Criteria for selecting indicators

52. The process of selecting indicators must be grounded in policy needs but also involves balancing a number of criteria surrounding the relevance to policy, the technical properties and current availability (or the feasibility, resource and statistical capacity implications of achieving an acceptable measure in a high proportion of countries). Although one may aspire to the situation in which an indicator fully satisfies all of the criteria, in practice that will not be the case. One must consider the extent to which the indicator meets criteria and make a judgement about whether failure against any one criterion is of such overriding concern as to disqualify a particular indicator from use. A large number of criteria may be identified, but the most important, in our view, are set out below.

Policy relevance

53. In terms of policy relevance:

- Indicators must be relevant to the policy requirement;
- Indicators should measure the real policy objective (or provide a proxy measure that is adequate for policy monitoring);
- Indicators should normally have a global policy relevance;
- Indicators should be straightforward to interpret: changes over time in any direction should not be ambiguous in relation to the policy interpretation, and significant differences between countries should be meaningful in terms of the policy goal.

Technical properties

54. In terms of technical properties:

- Technical properties of the indicator should be adequate for the purpose, recognizing that change over time is often more important than the level of the indicator;
- Indicators that fail to cover the target population fully should have sufficient coverage to ensure that the indicator values are unlikely to mislead policy users (i.e., the potential bias as a measure of the true policy objective should be small);
- If possible, where indicators are difficult to measure for countries with less well developed statistical capacity, simplified alternatives should be provided for use until the statistical capacity can support the more demanding measure;
- Indicators should be robust to institutional and cultural differences between countries and over time;
- Indicators should exhibit change over time at a rate that would support policy monitoring;
- Indicators should be produced with sufficient frequency and timeliness to support policy monitoring;
- Indicators should conform to international standards, if they exist.

Parsimony, availability and cost

55. In terms of parsimony, availability and cost, when considering additional indicators and policy objectives:

- Indicators already established within the priority framework (in particular those contained in existing major sets) should be used, wherever possible;
- Indicators added to the framework should not be closely correlated with other indicators already included and should reflect a new aspect of the policy issue;
- Where indicators are broken down into component indicators (e.g., mortality by cause or school enrolment by age), in order to merit separate inclusion in the framework component indicators should:
  - Support separate policy objectives;
  - And/or demonstrate important differences in time trends;
  - And/or demonstrate important differences between comparable countries;
- The choice of indicator must reflect the availability of data to support the indicator and the statistical capacities of a wide range of countries;
- Indicators that call for new data sources should not create burdens (cost, opportunity cost, skill requirements etc.) that are disproportionate to the benefit for most countries.

C. Criteria for setting priority levels

56. In our view, the priority level for a particular indicator must be driven by policy needs. It must also take account of the technical soundness and data availability for the indicator and the relationship to other indicators within the framework (where relevant). It is natural for anyone associated with a particular topic to regard it as having overriding priority. The priority assessment needs to be strong enough and independent enough to weigh fairly any particular indicator and its policy objective, and to resist "priority inflation" over time. That process should involve policy officials and statisticians, and should take account of national and international priorities. We have made an attempt to achieve that in the proposed framework as a set of initial proposals, but we also recommend a process whereby that can be kept under review. We suggest the following criteria:

- Tier 1 priority indicators should be the primary support for monitoring policies of the highest global and national importance. They represent the indicators that, no matter how limited the statistical capacity available, countries and international agencies would find essential for top-level monitoring of policy effectiveness. Although the number of indicators in that category should be driven by policy importance, we suggest that, as a guideline, any major domain (e.g., economics or health) should aim for no more than four to eight tier 1 priority indicators. Most domains should have fewer;
- Tier 2 priority indicators should cover different policy objectives (different sub-domains) from those covered by the highest priority indicators. Those policy objectives should be of sufficient importance to merit a tier 2 priority indicator. Not all sub-domains would necessarily do so. As a guideline, we suggest that a major policy domain (e.g., economics or health) should aim for no more than eight to 10 tier 2 priority indicators. Most domains should have fewer;
- Tier 3 priority indicators should support policy needs that are, although important, either subsidiary or judged to be less important than others. As a guideline, we suggest that each major policy domain should aim for no more than 10 to 12 tier 3 indicators. Most domains should have fewer;
- The representation of indicators that relate to important cross-cutting issues, such as poverty, gender or child welfare, also needs to be taken into account;
- Indicators that support several policy goals should generally command a priority level that reflects that complexity.

57. In our application of the above-mentioned criteria to create the proposed framework, in some we found that although the policy objective suggested allocation to a particular tier the inherent statistical weaknesses of the proposed indicator and/or measurement problems caused us to allocate the indicator to a lower tier.

Further details are provided in the technical assessment for each indicator on the above-mentioned web site.

58. The suggested numbers for each tier reflect the fact that the indicators are not intended to substitute for the mass of detailed statistical outputs from national statistical systems that support users' needs. They are intended as high-level indicators for monitoring purposes. The suggested numbers reflect the existing levels of statistical capacity within a wide range of countries that are less well developed. As the general level of statistical capacity rises, the potential to define a wider set of indicators can be reviewed.

59. In addition to the criteria set out above, the expert groups were required to take specific account of the indicators contained in the main existing sets of high-level indicators, unless there was an overriding technical reason for recommending an alternative.

60. The question of availability was particularly problematic for the expert groups since it was impossible to carry out a detailed assessment of the availability of 280 indicators in all countries of the world in the time available. **We recommend that the United Nations Statistics Division submit a report to the Commission on the availability of indicators in tiers 1 and 2 (and tier 3, where information is available) of the proposed framework. The report should include an assessment of what might be needed to overcome the shortfall.**

D. Indicators considered

61. In general, we have considered the 280 indicators identified from the United Nations summits and major conferences. However, we have in addition considered a small number of contextual indicators (such as population numbers in specified age groups by sex) that are essential to provide denominators for the other indicators, as well as a very small number of other indicators that are integral to the production of those required.

62. There are other indicators, which have been identified by international agencies or are in use inside many countries for policy-monitoring purposes, that do not appear in the proposed framework.

63. Within the main framework, indicators (or very close equivalents) that are contained in the major indicator sets (MNSDS, UNDAF-common country assessment, international development goals, basic social services for all, millennium development goals and Commission on Sustainable Development) are referenced to the sets to which they belong. There is an element of judgement in that cross-referencing. In some cases, there are technical differences between the indicator as described in the framework and corresponding indicators in the high-level set.

64. In addition to the seven domains, we have set aside a small number of indicators of human rights and good governance. Similarly, two environmental indicators were not included since they were not statistical and were therefore outside our mandate.

65. The development of statistical indicators for human rights and good governance will not be easy and will take time. **We recommend that the Commission establish a mechanism (perhaps a city group involving statisticians and others, including policy officials) to develop statistical indicators of human rights and good governance.** Whatever is established needs to take account of existing initiatives in the field, in particular of follow-up activities to the International Association for Official Statistics conference held in Montreux, Switzerland, from 4 to 8 September 2000. Although we recognize the importance of this area, we take the view that it would be better to "get it right" rather than "get it quick", if widespread ownership of the indicators is to be established around the world.

E. General and domain-related issues

Comparative measures

66. International comparisons require that statistics be put on a basis that is immediately comparable, and for that reason almost all of the indicators are presented as rates or proportions or in per capita terms, which require a denominator (often a population figure of some kind). Economic and some other measures use GDP as a denominator in the same way, which raises the following important issues:

- The pervasive use of GDP and of population estimates in this way underlines the importance of the quality of these estimates and the statistical infrastructure to support them if a wide range of indicators are to be sufficiently reliable;

- Both GDP and population estimates require a strong statistical capacity and infrastructure if they are to be regularly produced;
- Although the immediate population indicators call for population counts by sex and broad age group (0-4, 5-14, 15-64, 65+), the reality is that more precise estimates are required to support a range of other indicators. For example, five-year age categories strengthen age-specific mortality or fertility rates (and hence such measures as the total fertility rate). Also, other age groups are needed to support rates for such indicators as educational participation or HIV/AIDS infection rates;
- An added difficulty is that the numerator of such indicators and the population denominator are often provided from different sources within a country and may be inconsistent. Hence the rates, when calculated, may not be recognized within the lead policy ministry. In extreme cases, different population denominators may be used for different policy areas, which is clearly unsatisfactory and when it occurs may imply a systemic problem of consistency and quality assurance. International agencies have an important quality assurance role in identifying such situations and may act as a catalyst in helping countries to resolve them.

67. **We recommend that:**

- **When considering statistical capacity, international donors and countries themselves take particular account of the importance of a core set of demographic statistics and GDP estimates as an integral component of many statistical indicators;**
- **The need for coherent statistics used in the numerator and denominator of indicators be recognized, and that international agencies work to identify inconsistencies and act as a catalyst in helping countries to resolve them.**

68. A large number of indicators are usually derived from administrative systems in countries where they are well established (e.g., mortality rates by cause, fertility rates, net enrolment rates in education and many health indicators concerned with health services and provision). In countries where those systems are unavailable, survey-based measures are available and widely used in which both the numerator and denominator of the indicator may be derived from survey estimates, in which case a special survey devoted to one particular area of interest (e.g., health and fertility history) could provide a wide range of indicator values. Such surveys could easily extend beyond those contained in the three priority levels of the framework and that is a viable possibility, particularly when countries want a more comprehensive picture of a situation.

69. However, ad hoc surveys cannot provide the ongoing information needed to track important indicators. To ensure that critical information will be available on an ongoing basis, it is necessary to invest resources in the statistical infrastructure, which should include administrative databases and survey capabilities.

70. In addition, priority indicators should be few enough that all countries have the potential to produce them.

Meta-data

71. This is essential if users are to understand any particular issues affecting the statistical indicator values for any country. Good meta-data, such as those required by the Special Data Dissemination Standard and General Data Dissemination System of IMF, is a general requirement, but there are specific situations when countries should ensure that specific meta-data is provided. In particular:

- When national priorities result in an indicator, that is not fully comparable with those produced by other countries, failure to provide informative meta-data will fail those users who seek to use the indicator for comparative purposes;
- Where national standards or targets are adopted (for example, in setting a national poverty standard), the basis of that measure should be available to users;
- Population forecasts will depend crucially on the assumptions made about age-specific fertility rates, for example. A clear specification of the underpinning assumptions is essential to users;
- The assumptions underpinning inter-censal population estimates should be made known in countries where vital registration systems are unreliable or unusable.

72. **We recommend that member States supply adequate meta-data to support users' needs, in particular where national norms differ from international measures or underpinning assumptions may materially affect the indicator value.**

Gender statistics

73. A number of indicators call for separate analyses by sex. **As a general rule, we recommend that if the data source can support an analysis by sex then such analysis should be provided for all indicators.** To add emphasis, we have identified in the framework the indicators for which separate estimates by sex are particularly needed.

Distributional measures

74. There is a general issue about providing indicators that measure inequality and distribution within each country. There are a rather small number of indicators that focus on distributional issues (e.g., share of consumption by lowest quintile of population), but the large majority of indicators are based on national averages. Although it is beyond our mandate, we feel bound to observe that such indicators will mask much deprivation and inequality in the world. Analysis by subgroups (e.g., by sex, region, age group, income groups, ethnic or social classifications), where feasible, would illuminate that issue much more. Similarly, additional measures of inequality, such as the ratio of consumption by the highest 20 per cent of households to the lowest 20 per cent, have much to commend them.

Frequency

75. As a general issue, we comment on the frequency of provision of indicator values. In many countries with well-developed statistical systems, annual estimates will be available, and we regard that as the desirable goal. However, not all countries can sustain that frequency. The frequency with which indicators should be measured will vary according to the importance of the topic and the rate of change that the indicator is likely to display. **We recommend that, in general, indicators should be measured every three to five years, but some should be measured annually, while others (particularly those that are census based) should be updated every 10 years.** Failure to produce indicators at the desired frequency may be one sign of inadequate statistical capacity.

Demography domain

76. The choice of indicators in tiers 1 and 2 was relatively simple for the expert group because many are common to the needs of the United Nations conferences. They are well established nationally and internationally, are relatively widely available and are relatively few. They depend upon a good infrastructure for population statistics and vital registration. The indicators provide important contextual information for the indicators in other domains.

Health and nutrition domain

77. This domain has certain characteristics that make prioritizing very challenging. It includes an exceptionally large number of indicators. However, the indicators do not span all major health sub-domains, resulting in significant gaps in the final indicator set. That final set cannot be viewed as a core indicator set for the health domain. The fact that the indicators are at very different levels of specificity also makes it difficult to identify a coherent high-priority set. In addition, many of the indicators in the demography domain may also be considered major health indicators that should be evaluated along with the health and nutrition indicators. The sheer number of indicators made it difficult to carry out a full technical assessment, and that activity will need to continue in the future.

78. The technical evaluation of some of the indicators raised problems of data availability. Although such evaluation is done on an indicator-by-indicator basis, strategies for supplying the needed data can be developed in a more coordinated way. Investing in components of the statistical infrastructure, such as the vital statistics system or national health surveys, would provide data for several of the high-priority indicators, which would also allow countries to collect more extensive statistical information on particular aspects of health covered by the full set of conference indicators, if needed.

79. Given the large number of indicators, we felt it necessary to provide clear guidance on a relatively small number of indicators that countries could measure. We have made an initial attempt to carry out the technical assessment and to provide some structure,

and as a result a large number of indicators have been allocated to the additional category. Although many of those indicators present significant measurement challenges, countries that have the statistical capacity and the need for the more detailed information may wish to produce some of those indicators. **We recommend that the Commission establish a process involving official statisticians and others, including officials of the World Health Organization, to review the hierarchical framework and priorities in the health domain with the intention of addressing the substantive gaps in the indicator set, determining if there are infrastructure investments that can address a range of data gaps and creating linkages between the short list of priority indicators and the large number of other indicators in the domain.**

Environment and energy domain

80. Environmental indicators span a very wide range of different issues, and it is not likely that one indicator will serve as a proxy for others, which results in rather more indicators for the domain than one might initially expect. Also, environmental factors vary enormously with climate, and there will be issues, such as desertification or forest loss, that are not highly relevant to all countries. Nevertheless, those indicators are concerned with global issues as well as national policy areas. Comparability of indicators across countries is particularly difficult for some environmental indicators. It is often not the absolute level of the indicator so much as the trend over time that is the key focus of policy.

Economics and poverty domain

81. Except for GDP, which is provided as a contextual indicator, it is recommended that monetary indicators be expressed, not as a level but in general as a percentage of current price GDP. In the main, GDP is recommended rather than gross national income (GNI) for that purpose. **We recommend that the indicators adopted in the major sets be amended to be consistent with the use of GDP/GNI in the framework.**

82. A number of indicators depend on a poverty measure that may be a global standard (e.g., $1 per day or $2 per day) or may be a nationally determined poverty threshold. Also, measures may be based upon income or expenditure. The group favours an expenditure measure and for international comparison proposes an international standard. In all cases, the indicator should employ the purchasing power parity (PPP) conversion. Countries may also wish to utilize nationally determined poverty thresholds, if appropriate. A well designed household budget and consumption survey can be used for both universal and national measures. **Where these are produced, we recommend that the meta-data make the basis of poverty indicators clear, and in the case of national poverty lines it should contain an explanation of the methodology employed.**

83. When the indicator is measured in a financial unit (e.g., GDP or GDP per capita) the group favours the use of PPP conversion for international comparisons but recognizes that for some countries that may not be available and exchange rate conversion may be the only option. PPP estimation is virtually unique in the sense that its primary purpose is to convert monetary aggregates to a common unit for international comparison purposes. As such and with related measurement capability especially for developing countries, it may fall relatively low on national priorities. Those measures need continued effort if quality is to be improved, a fact that has been recognized by the Commission as well as international agencies and the World Bank. Given the nature of the measure, international assistance is essential. **We recommend that all efforts be made to fulfil the decisions of the Commission made in 2001 in respect of purchasing power parity measurement.**

Employment and labour domain

84. The majority of indicators in this domain derive from the ILO key indicators of the labour market project. Establishing priorities for the indicators is complicated by two factors. First, labour market indicators support both economic and social policies (e.g., earnings are a primary determinant of family well-being and the principal cost of production). Hence, a wide range of policy issues is at stake. The second factor is the fundamental difference between labour markets in most industrialized and developing countries. For example, indicators relating to the informal sector are essential to policy developments in most developing countries but are of little relevance to the analysis of labour markets in industrialized

countries. The choice of tier 1 indicators reflects an attempt to optimize at the global level.

Education domain

85. Indicators in the employment and labour domain are based upon a sound theoretical and conceptual base and half a century of continual measurement and refinement. In comparison, the proposed indicators in the education domain lack a similar solid conceptual foundation and measurement history. The first task of the group was to classify the indicators using the International Indicators of Education Systems framework of OECD as a rough guide. Once classified, it became clear that the majority of the proposed indicators reflect educational inputs rather than educational process or output/outcome measures. Also, outcome indicators used grade-level attainment as a proxy for real levels of literacy achievement. The main challenges for the group were, therefore, to try to strike a more balanced reflection of educational inputs, processes and output/outcomes and to recommend more reliable methods for indicators in the literacy domain. **We recommend that the Commission establish a process involving educational statistics experts from international agencies and member States to investigate the feasibility of adapting skill assessment methods employed in the developed world for use in developing nations.**

Other social domain

86. This domain is necessarily diverse since it comprises the social policy issues not allocated to other domains. Many of the topics do not have a strong framework of international statistical standards and guidelines as other areas. Hence, a number of the proposed indicators need further conceptual and statistical development if they are to be well grounded. We have drawn attention to them in the web site and have suggested some additional indicators that may be considered further through the process described in section IV below. The range of indicators derived from United Nations summits and major conferences in the "other social" domain appears to be deficient. In particular, the indicators for female participation and gender equality focus on political participation. There are no corresponding indicators for female participation in professional and senior administrative levels of the labour force. Also, there are virtually no social indicators focused on the social and housing conditions in which children are raised.

F. Indicator recommendations

87. Table 1 contains the recommendations of the expert groups for a classification of the indicators into the three priority tiers. The framework includes the structure of domains and sub-domains so that one may see how any indicator fits into the wider framework. Table 1 also contains a key to the indicators that appear in the major indicator sets. Detailed information on all the indicators considered is available on the United Nations Statistics Division web site (http://esa.un.org/unsd/indicatorfoc/). In addition, a background document entitled "Technical assessment of statistical indicators" contains a description of the work of the expert groups and comments on the indicator framework, issues and perceived deficiencies.

88. Table 1 has been structured to reflect the major policy areas that are common in most national Governments (economics, health, education etc.). Inevitably, there are important cross-cutting policy areas that are contained within the hierarchy. For example, gender statistics or statistics relating to children are contained within a wide number of domains and sub-domains. Similarly, the economic aspects of poverty are contained within the economics and poverty domain, but indicators that reflect other aspects of poverty are contained in other domains.

89. Table 2 provides a breakdown between the domains, by priority tier. For convenience, some demography sub-domains (mortality and fertility) include appropriate health indicators. The three priority tiers contain 38, 42 and 43 indicators, respectively.

90. Table 3 provides an analysis of the relationship between the priority recommendations contained in table 1 and the lists of indicators comprising the high-level sets (MNSDS: 15 indicators, millennium development goals: 48 indicators, international development goals: 29 indicators, UNDAF-common country assessment: 57 indicators, basic social services for all: 12 indicators; Commission on Sustainable Development: 58 indicators). Those counts include cases in which the expert group recommended a technical change in an indicator already identified by United Nations conferences or a direct replacement was judged to be preferred (for example, the

substitution of GDP for GNI for economics indicators; see para. 81 above).

91. A number of non-statistical indicators (human rights and environment) have been excluded from our considerations and hence from table 1. Also, a number of the indicators associated with the millennium development goals will be monitored for specific sets of countries only; they have been excluded on the basis that they are not global indicators. Table 1 shows that a high proportion of the various major sets are included in the three priority tiers of the framework. The remainder are generally included in the category of additional indicators, unless the proposed indicator was sufficiently flawed technically as to be omitted altogether.

92. MNSDS was established by the Commission as an attempt to provide guidance to countries on a high priority set of indicators that reflected United Nations summit and major conference priorities at that time. **We believe that that function has been superseded by the proposed priority framework, and hence we recommend that the Minimum National Social Data Set be withdrawn.**

IV. Future processes

93. The third requirement of the present report is to develop and recommend to the Economic and Social Council a mechanism of statistical review for future proposed indicators.

94. Future processes are undoubtedly needed for several important reasons. First, future United Nations summits and conferences will inevitably address new policy areas, or, when reviewing progress on existing policy areas, will see the need to modify or elaborate the policy objectives in such a way that new or revised indicators are needed. The second important reason is that international agencies must review and develop the indicator frameworks that relate to their sphere of interest as policy objectives change or new issues appear on the agenda. Indeed, we are aware of such reviews currently taking place in several agencies, and the indicator framework should be updated as those reviews come to fruition. The third reason is that international standards, definitions and best practices must evolve over time as technical standards increase (and as the global statistical capacity develops and can support more demanding standards). **For all those reasons, we recommend that it is vital that the framework be kept up to date.**

95. We see the need to consider three related issues:

- Establishing new indicators in response to future major conferences and summits;
- Keeping under review the proposed hierarchical framework and priorities;
- Reviewing and refining existing indicators over time.

A. New summits and major conferences, and new indicator initiatives

96. The work to establish new indicators should begin as part of the preparation for any forthcoming major conference or summit, and should involve both policy officials and statisticians from both international organizations and member States. In our view, there is not necessarily a need for new mechanisms but there is a need to make existing mechanisms work more effectively. A number of principles need to be applied:

- Although policy officials for a particular conference will see themselves as being in the lead on indicators related to a particular topic, many other officials from other parts of the United Nations and other international agencies have a legitimate interest in the development of indicators in any field;
- The indicator requirement should be seen within the wider context of the totality of indicator needs. As such, emerging needs must be set alongside existing needs;
- The development of new indicators should be reconciled with national policy needs for statistics and should take account of the statistical capacity of countries to produce them;
- Statisticians from international organizations have a role to play in assessing quality and reconciling the definitions of proposed indicators with the range of policy uses that may exist. National statisticians should also be involved in that process. But in addition, since they are closer to the raw data, they have a special perspective on the technical properties of indicators, the availability of any proposed indicator and the data-collection and resource implications;

- International consultation takes time, as does the development of high-quality statistical outputs, which needs to be recognized by the United Nations and other international agencies. However, if the wish of the Council to build agreement and ownership across the international community and Member States is to be realized, then that time is time well spent.

97. The ideal arrangements are not easy to articulate. In general, most (but not all) parts of the international community have made considerable efforts to improve coordination between themselves, but the problem of drawing member States into the indicator development process in a full and genuine way is much more difficult. Token consultation by international agencies when key decisions have already been made is not sufficient. At the national level, there is often good communication between statisticians and policy officials since national statistical plans need to be grounded in policy needs. In many countries, statistical work for some domains is often located in the lead ministry concerned rather than in a central statistical office, which improves communication between the statistician and the policy officials but often disrupts it between those statisticians and others in the national statistical system. Lack of coordination and coherent planning across the national statistical system is a sign of inadequate statistical capacity and/or legal and administrative frameworks for national statistics in a country.

98. From the national statistical perspective, it is the statisticians who are directly responsible that should make inputs into the indicator development process. But it is also essential that national statistical offices be informed if the coordination between statistical activities is to be achieved. We have tried to address that point in our recommendations.

99. **We recommend that advanced planning for United Nations summits or major conferences, or the significant review of indicators within any international agency, should trigger the consultation process described below.**

100. **We recommend that the identification of statistical indicators for monitoring purposes should involve both policy officials and statisticians, that each of those groups should draw upon international agencies and Member States, and that:**

- **The identification and development of new indicators should be coordinated by the appropriate lead policy area;**
- **It should take account of the capacity of countries to produce them;**
- **The officials concerned should have a clear responsibility to involve other agencies and parts of the United Nations organization who have a legitimate interest at the earliest stage;**
- **The liaison should involve both policy officials and statisticians within the international agencies; in particular, the United Nations Statistics Division should be involved from the outset;**
- **A number of representatives (statisticians and policy officials) of member States should be invited to join any development team as full participating members, and wider (electronic) consultation should also be undertaken;**
- **Within member States, the statisticians consulted should be those responsible for the relevant area, but the Division should ensure that national statistical agencies are involved in coordination issues;**
- **The Division should use the regional statistical commissions and direct electronic communication with national statistics offices to ensure that national statisticians are consulted during the development process;**
- **National statisticians, in turn, should use their regular contacts with their user communities (particularly national policy officials) to provide feedback on the reconciliation of national and international requirements, and the Division should provide feedback to the development process through those mechanisms;**
- **In due course, the lead policy area, in consultation with the Division, should make proposals to the Commission, which would report to the Economic and Social Council.**

101. **We recommend that the responsibility for maintaining the indicator framework and for extending it to take account of new requirements should rest with the Commission, which would recommend to the Council the adoption of new**

indicators and their position within the hierarchical framework.

102. **We recommend that the Commission establish a standing committee to take responsibility for indicator issues and to act on behalf of the Commission between meetings so that no undue delay occurs.**

103. **We recommend that the Division, in close consultation with the lead policy officials and as a result of the consultation process recommended, prepare recommendations for the Commission (or its standing committee, as appropriate).**

104. **We recommend that in developing indicators and placing them within the framework, the criteria listed in paragraphs 52-55 above be applied.**

B. Technical improvements and new international standards

105. The process of making technical improvements to statistics and of updating international statistical standards is long established. **Hence, we recommend that periodic reviews of individual statistical indicators within the proposed framework be included within the appropriate work programmes of statistical review and revision that are regularly reported to the Commission.**

V. Conclusion

106. **In our view, the future development of the indicator framework should be based on the present report and we recommend that the Friends of the Chair group be discharged.**

VI. Consolidated recommendations

107. **The 31 recommendations of the Friends of the Chair are set out below in a consolidated list.**

Consolidated recommendations of the Friends of the Chair

Development of indicators and maintenance of the indicator framework

1. The indicator framework should be updated in response to future United Nations summits and major international conferences, developments of the indicator framework within international agencies and advances in technical standards. (para. 94)

2. Advanced planning for United Nations summits or major conferences, or the significant review of indicators within any international agency, should trigger the consultation process recommended. (para. 99)

3. The need for baseline measures should be taken into account when targets are adopted that require change to be measured from a specific point in time. (para. 43)

4. The identification of statistical indicators for monitoring purposes should involve both policy officials and statisticians, each of those groups should draw upon international agencies and member States, and:

- The identification and development of new indicators should be coordinated by the appropriate lead policy area;
- It should take account of the capacity of countries to produce them;
- The officials concerned should have a clear responsibility to involve other agencies and parts of the United Nations Organization that have a legitimate interest at the earliest stage;
- The liaison should involve both policy officials and statisticians within the international agencies; in particular, the United Nations Statistics Division should be involved from the outset;
- A number of representatives (statisticians and policy officials) of member States should be invited to join any development team as full participating members and, wider (electronic) consultation should also be undertaken;

- Within member States, the statisticians consulted should be those responsible for the relevant area, but the Division should ensure that national statistical agencies are involved in coordination areas;
- The Division should use the regional statistical commissions and direct electronic communication with national statistics offices to ensure that national statisticians are consulted during the development process;
- National statisticians, in turn, should use their regular contacts with their user communities (particularly national policy officials) to provide feedback on the reconciliation of national and international requirements, and the Division should provide feedback to the development process through those mechanisms;
- In due course, the lead policy area, in consultation with the Division, should make proposals to the Commission, which would report to the Economic and Social Council. (para. 100)

5. The responsibility for maintaining the indicator framework and for extending it to take account of new requirements should rest with the Commission, which would recommend to the Council the adoption of new indicators and their position within the hierarchical framework. (para. 101)

6. The Statistical Commission should establish a standing committee to take responsibility for indicator issues and to act on behalf of the Commission between meetings to ensure that no undue delay occurs. (para. 102)

7. The Division, in close consultation with the lead policy officials and as a result of the consultation process recommended, should prepare recommendations for the Commission (or its standing committee, as appropriate). (para. 103)

8. In developing indicators and placing them within the framework, the criteria listed in paragraphs 52-55 should be applied. (para. 104)

9. The Statistical Commission should establish a process involving official statisticians and others, including officials of the World Health Organization, to review the hierarchical framework and priorities in the health domain with the intention of addressing the substantive gaps in the indicator set, determining if there are infrastructure investments that can address a range of data gaps and creating linkages between the short list of priority indicators and the large number of other indicators in the domain. (para. 79)

10. The Commission should establish a process involving educational statistics experts from international agencies and member States to investigate the feasibility of adapting skill assessment methods employed in the developed world for use in developing nations. (para. 85)

11. The Commission should establish a mechanism (perhaps a city group involving statisticians and others, including policy officials) to develop statistical indicators of human rights and good governance. (para. 65)

12. The indicators adopted in the major sets should be amended to be consistent with the use of GDP/GNI in the framework. (para. 81)

13. The Minimum National Social Data Set should be withdrawn. (para. 92)

Production of indicators

14. The Division should submit a report to the Commission on the availability of indicators in tiers 1 and 2 (and tier 3, where information is available) of the proposed framework. The report should include an assessment of what might be needed to overcome the shortfall. (para. 60)

15. In general, indicators should be measured every three to five years, but some should be measured annually, while others (particularly those that are census based) should be updated every 10 years. (para. 75)

16. If the data source supports an analysis by sex then such analysis should be provided for all indicators. (para. 73)

17. The need for coherent statistics used in the numerator and denominator of indicators should be recognized, and international agencies should work to identify inconsistencies and act as a catalyst in helping countries to resolve them. (para. 67)

18. Member States should supply adequate meta-data to support users' needs, in particular where national norms differ from international measures or underpinning assumptions may materially affect the indicator value. (para. 71)

19. Meta-data should make the basis of poverty indicators clear, and for national poverty lines it should contain an explanation of the methodology employed. (para. 82)

20. International agencies should strive to improve the coordination of data collection from countries. (para. 39)

Technical and quality issues

21. The United Nations Statistics Division web site should be the definitive source of technical information on the indicators. (para. 49)

22. The Division should promote the development of standards and guidance on best practices for indicators, where needed. (para. 39)

23. All statistical indicators should be subject to periodic review and improvement, and when such a review results in change, an approach should be provided to support countries in moving to the improved indicator while maintaining continuity with the recent past. (para. 45)

24. Periodic reviews of individual statistical indicators within the proposed framework should be included within the appropriate work programmes of statistical review and revision that are regularly reported to the Commission. (para. 105)

Statistical capacity

25. The Economic and Social Council and international donors should recognize the need to support and develop core statistical capacity within member States, including statistical infrastructure, and all donor activity for statistics should recognize the need to address both national and international statistical requirements. (para. 39)

26. As part of that recognition, the Council and international organizations and donors should promote the use of statistics to support effective national policy development and good public administration. (para. 39)

27. Donor-supported programmes should genuinely add to the statistical capacity within the country rather than divert it. (para. 39)

28. When considering statistical capacity, international donors and countries themselves should take particular account of the importance of a core set of demographic statistics and GDP estimates as an integral component of many statistical indicators. (para. 67)

29. The initiative to develop an indicator of national statistical capacity through the PARIS 21 initiative should span social and economic statistics and should be modified to involve member States, and final proposals should be made to the Commission. (paras. 29 and 39)

30. All efforts should be made to fulfil the decisions of the Commission made in 2001 in respect of purchasing power parity measurement. (para. 83)

Miscellaneous

31. The Friends of the Chair group should be discharged. (para. 106)

Table 1
Hierarchy of statistical indicators, by domain and sub-domain

Domain/sub-domain	*Tier 1*	*Tier 2*	*Tier 3*
Demography			
Population structure and growth	Average annual population change [6]		Population projections by age (0-4, 5-14, 15-64, 65+) and sex, in five-year intervals for 25-year horizon (initially 2010 to 2025) [1]
	Population by 5-year age groups and sex (if not possible by 5-year age groups then 0-4, 5-14, 15-64, 65+) [3, 4]		Per cent living in urban areas [6]
Demography/Health			
Fertility/Reproductive health	Total fertility rate [2, 4]	Fertility rate, females aged 15-19	
	Contraceptive prevalence rate [1, 2, 3, 4, 5, 6]		
Mortality	Life expectancy at birth by sex [1, 2, 3, 4, 6]	Infant mortality rate by sex [1, 2, 3, 4, 5]	Under-5 mortality rate from diarrhoea
	Under-5 mortality rate by sex [1, 2, 3, 4, 5, 6]	Malaria mortality rate [5]	Under-5 mortality rate from acute respiratory infections
		Maternal mortality ratio [1, 2, 3, 4, 5]	
Health and nutrition			
Health status and health behaviours	HIV/AIDS prevalence rate, ages 15-24, by sex [2, 4, 5]		Low birth weight (under 2,500 g) rate (birth weight below 2.5 kg)
			Malaria morbidity rate [5]
			Malaria treatment [5]
			Total child disability rate
Access to health care	Proportion of births attended by skilled trained health personnel [2, 4, 5]		Access to basic health care [3, 4, 6]

Domain/sub-domain	*Tier 1*	*Tier 2*	*Tier 3*
Nutritional status/ Healthy weight	Proportion of children under 5 suffering from malnutrition (underweight), (severe and moderate malnutrition), (incorporates nutritional status of children) [2, 3, 4, 5, 6]	Proportion of population undernourished (below minimum level of dietary consumption) [4, 5]	Prevalence of stunting
Prevention/Immunization/ Public health measures	Proportion of children under 1 immunized against measles [4, 5, 6[a]]		Proportion of population immunized against TB (TB immunization coverage)
	Proportion of children under 1 immunized against DPT (DPT immunization coverage) [6[a]]		Polio incidence rate
	Proportion of population with access to safe drinking water [1, 2, 3, 4, 5, 6]		
	Proportion of population with access to sanitary means of excreta disposal [1, 2, 3, 4, 5, 6]		
Environment and energy			
Atmosphere	Emissions of greenhouse gases (millions of tons, expressed in CO_2 equivalents) [2, 4, 5, 6]	Ambient concentration of pollutants in urban areas [6]	
		Consumption of ozone-depleting substances (tons, expressed in CFC-11 equivalents) [5[b], 6]	
Land	Forest area as per cent of land area (and trend over time) [2, 5, 6]	Fertilizers use in agriculture per unit of agricultural land area [6]	Proportion of forest fellings to the net annual forest increment [6]
		Use of pesticides per unit of agricultural land area [6]	Total arable and under permanent crop land area [4, 6]
		Proportion of land affected by desertification [6]	
Oceans, seas and coasts		Algae concentration in coastal waters [6]	Proportion of annual catch of major marine species to spawning biomass [6]

Domain/sub-domain	*Tier 1*	*Tier 2*	*Tier 3*
Freshwater	Annual withdrawals of ground and surface water as per cent of total renewable water [6]	Biochemical oxygen demand in water bodies [6]	Concentration of faecal coliforms in freshwater [6]
Biodiversity	Protected area as per cent of total area [2, 4, 5, 6]		Area of selected key ecosystems [6]
			Abundance of selected key species [6]
Consumption and production patterns	Energy use per unit of GDP [2, 4, 5, 6]	Share of consumption of renewable energy sources [6]	Annual energy consumption per capita [6]
	Generation of hazardous and radioactive wastes [6]	Intensity of energy use by manufacturing and commercial/services sector [6]	Consumption volume of primary and secondary materials per unit of real GDP [6]
		Intensity of energy use in the residential sector [6]	
		Intensity of energy use in transportation [6]	
		Waste treatment [6]	
		Total generation of industrial and municipal solid waste per capita per year [6]	
Economics and poverty			
Economic resources	Real GDP per capita [1, 6]		Growth in real GDP per capita [4][c]
	Real GDP (in PPP terms)		
Distribution/Inequality	Gini coefficient of (disposable) income distribution (Gini index of income inequality) [6]		
Poverty	Proportion of population below US$ 1 [2, 4, 5, 6]	Poverty gap ratio (incorporates poverty gap at $1 per day and poverty gap at $2 per day) [2, 4, 5]	

Domain/sub-domain	*Tier 1*	*Tier 2*	*Tier 3*
	Proportion of population below national poverty line [4, 6]	Lowest (income or consumption) quintile's share of total consumption (poorest fifth's share of national consumption) [2, 4, 5]	
Saving and investment		Investment as a proportion of GDP [2, 6]	
		Gross saving as a proportion of GDP [4]	
International trade and foreign investment	Trade as a proportion of GDP [2, 4]	Net external debt as proportion of GDP [2, 4, 6]	
International development assistance		Net official development assistance as a percentage of GNI [2, 5, 6]	
Particular components of expenditure, income and production			Government expenditure on health as proportion of GDP
			Government expenditure on education as proportion of GDP
Inflation			Annual average rate of inflation
Employment and labour			
Labour supply	Labour force participation rate	Employment-to-population ratio [1, 4]	Proportion of labour force aged 25-29 with tertiary education
			Proportion of labour force aged 15 years and over with tertiary education
Labour utilization	ILO comparable unemployment rate, by sex [1, 4, 6]	Long-term unemployment rate	Time-related underemployment as percentage of labour force
		Unemployment rate, by educational attainment	
		Youth unemployment rate [5]	
Distribution of labour	Employment proportions, by sector (Agriculture/industry/services)	Percentage employed, by status (waged and salaried/self-employed)	Urban informal sector employment as percentage of total urban employment

Domain/sub-domain	*Tier 1*	*Tier 2*	*Tier 3*
		Informal sector employment as percentage of total employment [4]	
Labour volume		Mean annual hours worked per person	Proportion of employees working 1-10 hours per week
		Part-time employment as percentage of employment	Proportion of employees working over 40 hours per week
Cost of labour		Hourly compensation cost in PPP$	Labour compensation per unit of output in PPP$
		Real manufacturing wage trends (ILO and UNIDO series)	
Gender equality	Female share of paid employment in non-agricultural activities [4, 5]	Ratio of average female-to-male wages [6]	
Labour output measures		Value added per person employed in PPP$	Value added per hour worked in PPP$
Child labour	Proportion of children aged less than 15 who are working [4]		
Education			
Financial resources	Public current expenditure on primary education (a) as a percentage of GDP, and (b) per pupil, as a percentage of GDP per capita		
Teachers		Pupil teacher ratio	Proportion of primary teachers having required academic qualifications
Participation	Net enrolment ratio in primary (or basic) education, by sex (incorporates ratio of girls to boys in primary education) [2, 4, 5]		Ratio of girls to boys in tertiary education
	Net enrolment ratio in secondary education by sex (incorporates ratio of girls to boys in secondary education) [2,[d] 4, 5[e]]		

Domain/sub-domain	*Tier 1*	*Tier 2*	*Tier 3*
Output and efficiency	Proportion of pupils starting grade 1 reaching grade 5 of primary education [2, 4, 5, 6]	Average number of years of schooling completed by urban/rural, sex and, where possible, by income classes [1]	Secondary school completion ratio
Outcome	Adult literacy, by age and sex [2, 3, 4, 6]		Proportion of population aged 25-64 who completed secondary education [6]
Other social indicators			
Crime and justice		Homicide rate [4,[†] 6[†]]	Crime rates [4, 6]
			Number of persons in prison per 1,000 population
			Prevalence rates of illicit drug use (or) illicit drug-related death rate [4]
Women empowerment and gender equality	Proportion of seats in national Government, including Parliament, held by women [4, 5]		Ratio male/female decision makers at city level
Housing	Proportion of households with electricity (household connections: electricity)	Number of people per room (excluding kitchen and bathroom) [1, 4]	Area of urban settlements, by formal and informal [6]
			Proportion of households with piped water
			Tenure type: percentage of all households that own their dwellings and percentage of all households that rent their dwellings [5]
Access to information technology	Main telephone lines per 1,000 population [5, 6]	Internet subscribers per 1,000 population [6]	
		Number of PCs per 1,000 population [5]	

Key:

[1] = Minimum National Social Data Set
[2] = International development goals
[3] = Basic social services for all
[4] = Common country assessment
[5] = Millennium development goals
[6] = Indicators of sustainable development (Commission on Sustainable Development indicators)

[a] Part of the Commission on Sustainable Development indicator "immunization against infectious childhood diseases", whose definition includes "the proportion of children immunized against diphtheria, tetanus, pertussis, measles, poliomyelitis, tuberculosis and hepatitis B before their first birthday".

[b] Not one of the 48 millennium development goals indicators; however, indicator No. 28 (carbon dioxide emissions — per capita) also includes "two figures of global atmospheric pollution: ozone depletion and the accumulation of global warming gases".

[c] The common country assessment indicator is "decadal growth rate of GNP per capita".

[d] The international development goals indicator is "ratio of girls to boys in primary and secondary education combined".

[e] The millennium development goals indicator is "ratio of girls to boys in primary, secondary and tertiary education".

[f] As part of the indicator "crime rates".

Table 2
Number of indicators, by domain and priority level

Domain	Priority levels		
	Tier 1	*Tier 2*	*Tier 3*
Demography	2	0	2
Demography Health	4	4	2
Health and nutrition	7	1	8
Environment and energy	6	13	8
Economics and poverty	6	6	4
Employment and labour	5	12	8
Education	5	2	4
Other social indicators	3	4	7
Total	**38**	**42**	**43**

Table 3
Correspondence of recommended indicators to existing sets, by priority level

Indicator sets	Priority level			
	Tier 1	*Tier 2*	*Tier 3*	*Total*
MNSDS	7	5	1	13/15
UNDAF-common country assessments[a]	25	11	5	40/50
International development goals	18	7	0	25/29
Basic social services for all	8	2	1	11/13
Commission on Sustainable Development[b]	23	19	13	50/56
Millennium development goals[c]	19	9	3	30/36

[a] Total count for UNDAF-common country assessments excludes seven proposed non-statistical indicators on human rights and good governance; the total of 40 does not equal the sum of the tiers (25 + 11 + 5 = 41) because of overlapping (e.g., "homicide rate" and "crime rates" from table 1 are considered as a single common country assessments indicator, "crime rate", rather than two separate indicators).

[b] Total count for the Commission on Sustainable Development excludes two non-statistical indicators on the environment; the total of 50 does not equal the sum of the tiers (23 + 19 + 13 = 55) because of overlapping (e.g., "per cent under 1 immunized against measles" and "under 1 immunization rate against DPT" from table 1 are considered as a single Commission indicator, "immunization against infectious childhood diseases", rather than two separate indicators.

[c] Total count for millennium development goals excludes 12 indicators that will be monitored for specific groups of countries only; it also excludes "two figures of global atmospheric pollution" (see A/56/326, annex) that need to be specified in the future (see table 1, footnote b). The total of 30 does not equal the sum of the tiers (19 + 9 + 3 = 31) because of overlapping (e.g., "malaria mortality" and "malaria morbidity" from table 1 are considered as a single millennium development goals indicator, "prevalence and death rates associated with malaria", rather than two separate indicators.

United Nations E/CN.3/2002/27

Economic and Social Council

Distr.: General
27 December 2001

Original: English

Statistical Commission
Thirty-third session
5-8 March 2002
Item 7 (f) of the provisional agenda*
Activities not classified by field: meeting the needs for statistics on human development

Report of the Human Development Report Office of the United Nations Development Programme

Note by the Secretary-General

The Secretary-General has the honour to transmit to the Statistical Commission the report of the Human Development Report Office of the United Nations Development Programme. The report is transmitted in accordance with a request of the Statistical Commission at its thirty-second session.[1] The Commission is requested to provide advice on the points of discussion contained in paragraphs 13 and 59.

* E/CN.3/2002/1.

[1] *Official Records of the Economic and Social Council, 2001, Supplement No. 4* (E/2001/24), para. 52 (d).

01-72288 (E) 120202

Report of the Human Development Report Office of the United Nations Development Programme

Contents

		Paragraphs	Page
	Summary		3
I.	Introduction	3–11	3
II.	Gaps in country coverage	12–18	5
III.	Data quality	19–26	6
IV.	Policy areas where data are lacking	27–30	7
V.	Statistical issues that cut across policy areas	31–41	9
VI.	Recent improvements to the statistics in the *Human Development Report*	42–51	11
VII.	Conclusion	52–57	12
Annex			13
	Annex table 1. Indicators used in assessment of progress towards selected millennium development goals		14

Summary

In the analysis of human development, 29 countries lack basic data that are required for the human development index. Many more, including some large countries, lack other basic statistics. Where data do exist, quality is a major issue. Sources are improving but some policy areas, such as poverty and education, have very large data gaps. Other statistical issues that cut across most policy areas, such as purchasing power parities and demography, are also in need of urgent improvement in terms of quality, comparability and scope. The present report discusses these problems and suggests some priorities from the point of view of the *Human Development Report* as a user of statistics. It also outlines the steps taken in the *Human Development Report* to improve its use of the statistics that are available. Finally the conclusions are summarized and the views of the Statistical Commission are sought on the way forward.

The paper has seven sections: section 1 provides some background and describes the nature of the *Human Development Report* section 2 discusses some countries for which data are most lacking; section 3 discusses data quality; section 4 discusses policy areas where data are lacking; section 5 discusses some other statistical problems that cut across policy areas; section 6 describes some improvements in the use of statistics in the *Human Development Report*; and section 7 presents a short summary and conclusion.

I. Introduction

An indicator of the size of the problem

1. In the 2001 edition of the *Human Development Report*, 29 United Nations Member States are excluded from the human development index owing to lack of data (although a special addendum for 12 of the 29 countries was issued, in which some broad estimates were used). The index uses only very basic statistics (gross domestic product (GDP), purchasing power parities, enrolment, literacy and life expectancy), and alternative estimates are sought from other sources if one of the components of the index is missing. Bearing this in mind, the lack of data for 29 countries is indicative of a lack of data across a wide range of policy areas. The human development index and other composite indices in the *Human Development Report* captures only a few basic dimensions of human development but, even so, their data requirements are not fully met. Human development is a much broader concept, and the lack of data for the index is just the tip of an iceberg. There have been improvements in many parts of the world but the lack of data is still a serious handicap in those countries where information is needed most.

The *Human Development Report* is analytical

2. The primary purpose of the *Human Development Report* is to make a critical analysis of the state of human development and trends across the globe, including a specific theme each year (the theme in 2001 was new technologies and in 2002, governance). Data is therefore sought for as much of the globe as possible and for

many aspects of human development, from poverty, human rights and personal security to good governance.

3. The analysis of human development focuses on people rather than on the economy and, where possible, on results rather than inputs. There is also an increased consciousness that data are required not just for Governments and other decision makers, but are fundamental to the democratic debate.

4. The Human Development Report Office is committed to monitoring and promoting human development within and between countries and over time. The process of bringing together data from every region of the world and on all of the topics that relate to human development, permits a synoptic view of the availability of statistics and of some of the concepts that underpin them. In the present paper an attempt is made to highlight what the Office sees as some of the more urgent statistical needs that are not being met.

5. The *Human Development Report* has a high profile, is widely quoted and is therefore a significant source of information and analysis around the world. It is from this perspective, as users of statistics, that the need for more or better statistics is discussed herein.

Statistics are crucial

6. While the statistics needed for measuring and analysing human development are crucial, they are not unique to human development. The same data are needed for many other purposes.

7. The United Nations Development Programme (UNDP) does not have a statistics department. The Human Development Report Office does not collect data directly from countries but, rather, relies on other international institutions. It is fortunate that the colleagues in those institutions are very cooperative. The Office's major sources are listed in the annex to this paper.

Sources are improving

8. The Office expresses its appreciation for the statistics that are provided to it. Without them there would be no *Human Development Report* as we know it. The Office likewise acknowledges the remarkable progress that has been achieved in such areas as national accounts, poverty, income inequality, gender inequality, environment, informal sector activities, and so on. Credit is due to the United Nations, regional organizations, other international organizations and, of course, the countries themselves and their bilateral partners.

Categorizing some of the data problems

9. The problems will be looked at under four headings: first, in terms of countries for which there is a consistent lack of basic data; second, reference is made to some crucial issues of data quality; third, the problems will be looked at in terms of policy areas where data are lacking; and fourth, some statistical issues that cut across the boundaries of statistical sectors or policy areas will be examined.

Seeking help and advice from the Statistical Commission

10. Some international statistical problems from the perspective of the *Human Development Report* as a user of statistics are highlighted. The work on the millennium development goals for the General Assembly annual report on global and country-level monitoring and the data requirements of global conferences will provide a longer list of indicators. The present report highlights only a small number of specific areas, but also highlights a number of countries where quite basic data across many policy areas are lacking. Reference is mostly made to the lack of data, but also to many problems with the quality of the data that are available.

11. Of the long lists of actual or potential indicators, which should have priority? The Office would like to contribute to that debate, and would be grateful to the Statistical Commission for its views on these issues and, in particular, its views on the way forward.

II. Gaps in country coverage

12. As noted above, there are 29 countries for which it is not possible to obtain even some of the basic data required for the human development index, although a special addendum was issued for 12 of them, in which some broad estimates were used. Some of the countries, such as San Marino and Tuvalu, have populations of only a few thousand and cannot be expected to have the range of data of larger countries. But others on the list, including Afghanistan, Iraq, the Democratic Republic of Korea and Somalia, have populations of around 10 to 20 million (table 28 of the *Human Development Report* 2001 lists all of the 29 countries and provides some statistics on them).

13. For the gender-related development index basic data is available for 146 countries; for the gender empowerment index, for only 64 countries; and for the human poverty indices (HPI-1 and HPI-2), data is available for a total of only 117 countries (the current United Nations membership is 189).

14. The millennium development goals relate to poverty, hunger, education, gender equality, maternal health, child mortality, disease and environmental sustainability. In the *Human Development Report* 2001 we made a crude assessment of the progress made in the 1990s towards selected goals for which trend data are available. Annex table 1 shows the country and population coverage of this analysis. It gives another striking example of the inadequate coverage of basic data for global assessment, particularly in the area of poverty and education.

15. Mention of these countries does not indicate criticism of their efforts nor a lack of appreciation of their predicaments. In the paper before the Statistical Commission at its current session that discusses the data requests of global summit meetings (E/CN.3/2002/26) it is emphasized that, in order for data requests to be met, the capacities of the statistical systems of many countries would have to be much improved. The Human Development Report Office agrees with that sentiment.

16. National priorities for statistics must take into account national problems and national characteristics. For example, in some regions malaria is a serious problem and in other regions it is not. But many countries lack such basic data as GDP (purchasing power parity), school enrolment, literacy or life expectancy, and of course these are not the only data missing. More and better statistics are needed if

the human development status and trends of these countries is to be assessed. The gaps in some of the tables in the *Human Development Report* show that, in general, those with the lowest human development index also have the lowest number of relevant statistical series. In particular, many countries of sub-Saharan Africa (mostly least developed countries) lack much of the data needed for intelligent policy decision-making and public debate. They include such populous countries as Angola, Congo, Malawi, the Sudan and Uganda.

17. The road map towards the implementation of the United Nations Millennium Declaration (A/56/326 dated 6 September 2001) contains a special section entitled "Meeting the special needs of Africa" (it does not single out any other region). Apart from the special case of Eastern Europe over the past 10 years, sub-Saharan Africa is the only region that has seen a decline in its GDP per capita over the past 10 years. It has also seen a decline over the past 25 years (see table 11 of the *Human Development Report*, 2001).

18. In addition to dealing with data quality and gaps in the various statistical domains across the world, many least developed countries, especially those in sub-Saharan Africa, and some others, need concentrated help in building the capacity to provide the basic data required, not just by the *Human Development Report* and other international users, but by the countries themselves.

III. Data quality

19. In some areas there is a fine line between data quality and data gaps. Data may exist, but can be of such poor quality that they can serve to mislead, rather than inform. In some cases, the data provided to us are merely estimates, are out of date, or do not conform to any accepted definition.

20. Many discrepancies are also encountered between data series published by countries as compared to those published by international organizations. Some of the discrepancies are the result of adjustments made by the international agencies in order to make data comparable between countries, but some are owing to data being supplied by different national government offices or the international agency not having the latest data revisions.

21. An example of inconsistencies within countries is adult literacy in the Caribbean. In 1995, the literacy rate given for Belize in 1992 was 96 per cent. However, the Belize 1991 census indicated between 70 and 80 per cent, and the current estimate for 1997 is 75 per cent. One of the problems here is the tendency to blur the differences between "basic", "simple" and "functional" literacy. Similarly, literacy estimates derived from different types of surveys, or using different methodologies, can also lead to different results.

22. In other domains too, different sources within a country produce different estimates. For example, household consumption estimates derived from household budget surveys, are commonly different from the estimates in the national accounts, with the latter being more comprehensive. This becomes a quality issue only when the data are treated as though they were defined the same.

23. There also exist inconsistencies between countries. In comparing data between countries, it is essential that the norms and standards employed are much the same from one country to another. However, this is often not the case in such important

areas as access to safe water, access to health services and births attended by skilled health personnel.

24. With regard to inconsistencies over time, comparability is also important, but sources and methods are apt to change especially in developing countries. Poverty studies, for example, may depend on quite different surveys from one time period to another, so that any change in results is impossible to interpret.

25. Inconsistencies between internationally and nationally published statistics tend to undermine their utility and their credibility. Greater coordination at the national and international levels is essential.

26. Nevertheless, there will always be some inconsistencies and some variability in the quality of data. It is incumbent upon users like ourselves, and upon the international agencies that collect the data from countries, to validate the information as far as possible and to ensure that the metadata that accompany the published statistics include notes on any additional uncertainty.

IV. Policy areas where data are lacking

27. There are many policy areas in which links with human development are well established but where data, and even the concepts that are essential prerequisites for statistical indicators, are sparse. For example, there are many conceptual and data gaps in personal security, social exclusion and participation, equity in social areas other than income, gender disparity, informal sector activities, and in environmental sustainability.

28. However, even where the concepts are fairly well established such as in the domain of poverty there are still many data gaps. As noted above, because of the lack of basic data, the composite human poverty indices (HPI-1 and HPI-2) can be calculated for a total of only 117 countries.

29. Similarly, in education, many concepts are well established, but much of the data are poor or non-existent. In health, there are many input indicators but many fewer indicators of outcomes or results. In these and other domains, data quality is also a serious issue, as indicated above.

30. The following are examples of statistics from some of these areas:

(a) *Proportion of people below a given income level.* In the area of income poverty, the concepts are well developed and numerous, but basic data are still severely lacking. For some purposes, aggregate national statistics would be sufficient if they were available, but for addressing such issues as deprivation and inequality within societies data that are disaggregated to show, for example, the distribution of income by numbers of households and by household type, for instance, the age or the gender of the head of household, are needed. Average income per capita, or GDP per capita, are informative broad indicators of income levels, but countries vary greatly in their distribution of income. In addition, the distributions can change significantly over time. One widely used indicator of poverty for developing countries is the number or proportion of people living on $1 a day or less. However, for many developing countries, even this basic statistic is not known (see table 3 of the *Human Development Report*, 2001). Similarly, for developed countries, a basic measure of poverty is the proportion of people or

families with incomes below 50 per cent of the median household income. Again, even this basic statistic is not available for many developed countries (see table 4 of the *Human Development Report*, 2001). More and better statistics on the distribution of income between households or individuals is a high priority for the Office, in respect of both developed and developing countries.

(b) *School enrolment and literacy*. For the purpose of analysing human development, data is needed on educational attainment and on access to proper educational facilities, but the only data relating to access to educational facilities that are commonly available for many countries relate to gross enrolment. That is to say, it includes the numbers of pupils enrolled in school, by grade, without information on their age, nor information on whether or not they actually attend school, nor whether the schools can offer proper education facilities. Such estimates are often poor indicators of school attendance. It should not be unrealistic to ask for net enrolment, namely, what proportion of each age group of children are enrolled in school. For monitoring the millennium development goals, the indicators for education are net primary enrolment, children reaching grade 5 (the end of primary level) and youth literacy. In gender inequality, the indicators are the ratios of girls to boys in gross enrolment at primary and secondary levels and male and female youth literacy. For net primary enrolment and children reaching grade 5, trend indicators are available for only 39 per cent of the world's population (excluding high-income member countries of the Organisation for Economic Cooperation and Development), as shown in annex table 1. The balance sheet of human development in terms of some of the millennium development goals is given on pages 21 to 25 of the *Human Development Report*, 2001. Literacy measures should reflect comparative educational attainment, but they often do not because they are inconsistent between countries. However, some countries now have more meaningful measures of "functional literacy", mainly through the International Adult Literacy Surveys. Even with such surveys there are some difficulties with comparability, but they are nevertheless more comparable than the traditional estimates of literacy. The indicators for education in the millennium development goals are also listed among the indicators required for United Nations summit meetings. In the paper before the current session of the Statistical Commission, entitled "An assessment of the statistical indicators derived from United Nations summit meetings" by the Friends of the Chair (E/CN.3/2002/26), these indicators are given the highest status in the hierarchy of indicators.

(c) *Victims of crime*. Prevalence of crime, fear of crime and confidence in the rule of law are important elements in personal security and human rights, but it is notoriously difficult to compare crime and justice statistics between countries, or even over time within countries, because of the way countries classify crimes (often related to sentencing policies) and the vagaries of crime reporting. Even within a country, an increase in the number of crimes reported of a particular type, does not necessarily relate to a change in the number of such crimes, but may relate to a change in the law or in attitudes to such criminal activity and the likelihood that the police will deal with it. The International Crime Victim Survey is an international programme of standardized surveys in which random samples of people are asked about their experiences with crime, whether or not the crimes were reported and their experience with the police and their feelings of safety. The surveys are coordinated by the United Nations Interregional Crime and Justice Research Institute. The project began in 1989 and, since then, there have been 145 surveys in

71 countries. It is only through such surveys that information can be derived that is, first, comparable internationally and second, directly relevant to the people who are victims of crime, or who live in fear of becoming victims of crime. Thus far, however, they have been undertaken in only about one third of the countries of the world, and there are thus no comparable data for the other two thirds. This is an area where the way in which the data gaps can be filled is clear. Some data from the surveys are given in table 20 of the *Human Development Report*, 2001.

(d) *Good governance and human rights*. Governance is the theme of the *Human Development Report*, 2002, and human rights was the theme in the *Report* for 2000. Both areas are intrinsically difficult to quantify, largely because there is little agreement on the concepts and the standards, and because questions such as how many prisoners are tortured, how free are the news media, or how widespread is corruption are unlikely to be answerable in terms of official statistics. No international organization has specific responsibility for governance. The World Bank has done a lot of work in recent years in trying to establish objective measures of governance (http://www1.worldbank.org/publicsector/indicators.htm). Other, mainly non-governmental, international organizations and researchers have also done conceptual work and published some measures in recent years. But the data vary in their time scales and their country coverage and, where they provide quantitative scores, they are often based on qualitative data. The Inter-Parliamentary Union also provides some data on political participation and structures of democracy. The report of the Friends of the Chair entitled "An assessment of the statistical indicators derived from United Nations summit meetings" (E/CN.3/2002/26) notes that for new policy areas such as human rights and good governance, no established indicators exist. In such areas, the development of statistical indicators will take time and the process needs to involve statisticians and policy officials. The report goes on to recommend that the Statistical Commission establish a group to develop indicators in those areas. The Human Development Report Office is willing to participate in research in the areas of human rights and governance.

V. Statistical issues that cut across policy areas

31. There are many statistical issues that cut across policy areas. In general terms, data quality, as discussed above, is the main concern. Comparability of statistics (within countries, from country to country and over time) is a prime need for any analysis of the state of human development and trends across the globe. Despite advances in international standards, and their increased adoption in many areas, there are still very significant gaps.

32. An important issue for us too is the need for data that are used to convert raw statistics into more comparable or more meaningful information. Two examples are discussed here. One example is purchasing power parities and another is population estimates and projections.

Purchasing power parities

33. In order to compare almost any data expressed in money terms between one country and another, it is necessary to convert local currencies into a common currency, so that statistics can be compared in "real" terms. That is to say, converted

into terms that allow the purchasing power of the sums to be compared. The purchasing power parity tables that are derived from the International Comparison Programme are designed to provide the necessary converters.

34. *Human Development Reports* have been using purchasing power parities from the first edition in 1990. For example, in the human development index, GDP per capita is calculated using purchasing power parity to convert GDP estimates. Purchasing power parities have been used increasingly over the last 10 years, by the Human Development Report Office and by many others. In the *Human Development Report*, 2001 purchasing power parities are used systematically to compare economic and financial data across countries.

35. The conceptual case for using purchasing power parity is clear, and there is no viable alternative for most purposes, but there are two practical problems. One is that the World Bank has been able to estimate purchasing power parity directly (using special price survey data) for only 118 of the 220 distinct economies around the world. For other countries they have had to use regression techniques on the assumption that economic characteristics and structures of surveyed countries are similar to non-surveyed countries.

36. The second problem with purchasing power parity is the quality of the input data and of the results. It is intrinsically difficult to estimate price relatives over time or over space, so even with better input data, the results would still be subject to wide margins of error, especially when comparing countries with very different buying habits and levels of income. Nevertheless, it is recognized that the purchasing power parity could be much improved with better inputs and improved methodology.

37. The importance of purchasing power parity in economic and socio-economic analysis underlines the need for improvements in such data. This has been recognized and the World Bank, the Organisation for Economic Cooperation and Development and Eurostat have been leading the international effort to provide the necessary increase in institutional and financial support. We also support this initiative.

Population statistics

38. The *Human Development Report* uses some demographic data as direct measures of human development. These include life expectancy, infant mortality, fertility and dependency ratios. But the demographic data that the Office uses the most are population estimates and projections. These data are used in all the areas of human development, often as denominators or as weights for aggregation.

39. Our dependence on population data in so many areas emphasizes some of the inconsistencies, particularly between the estimates used by the various international agencies upon which we rely. For example, in the human development index the GDP per capita of the World Bank (which uses one set of population data) is used, but there is a different set of population estimates for the other human development index components. We could standardize on one set of population estimates, but then our published "per capita" data would be inconsistent with that published by the agencies that supply the data.

40. The impact of HIV/AIDS on population estimates and projections has added to the confusion. Many countries have approached the Office to ask about the effects

on life expectancy figures and the methodology used. But there does not yet appear to be agreement between international agencies.

41. The above-mentioned Friends of the Chair report gives "highest priority" status to estimates of population by age.

VI. Recent improvements to the statistics in the *Human Development Report*

42. So far in the present paper, the lack of statistics and the quality of statistics in some areas have been discussed. In this section, we describe our recent efforts to improve our use of the statistics that already exist, in the light of the report of the Friends of the Chair report (E/CN.3/2001/18) that was discussed in the Statistical Commission in 2001.

43. It has already been noted above that purchasing power parities are now used more systematically throughout the report.

44. There is now regular engagement with the international agencies that the Office relies upon for data. This includes visiting their offices around the world to discuss the possibilities and agreeing with them in advance on what data we are likely to need.

45. We also engage more closely with the international statistical community collectively, through the Statistical Commission, and through the Subcommittee on Statistics of the United Nations System Chief Executives Board for Coordination (formerly the Administrative Committee on Coordination), which is attended by the heads of statistics of the agencies.

46. The Office has also reviewed the general principles in the use of statistics in the *Human Development Report* both in the analytical chapters and in the statistical tables.

47. The Office also ensures that all data sources are fully referenced and notes where there may be any additional uncertainty about the data.

48. There is now a Statistical Advisory Panel of expert statisticians and economists that meets to advise the Office on various aspects of statistics in the *Human Development Report*.

49. The Office has also been fortunate enough to have peer reviewers go over the statistics in the analytical chapters and the tables. This has been an important backstopping process in a report that uses so many statistics.

50. In addition, the Senior Statistical Adviser of the Office is collaborating on all aspects of the use of statistics in the *Human Development Report*.

51. The results are positive, but it is for the users of the *Human Development Report* to judge whether the extra efforts made have been successful in achieving the major improvement being sought. In any case, the efforts will continue unabated with a view to effecting improvement.

VII. Conclusion

52. The present report highlights some of the most severe international statistical problems as seen from the perspective of the Human Development Report Office. We have referred to both the lack and quality of data that are available. In particular, the Office would emphasize the following needs: from the long lists of actual or potential indicators, which should have priority? The Office would like to contribute to that debate and would be grateful to the Statistical Commission for its views on these issues, and in particular, on the way forward.

53. In addition to dealing with data quality and gaps in the various statistical domains across the world, many countries of sub-Saharan Africa (mostly least developed countries) and some others need concentrated help in building the capacity to provide the basic data required by the *Human Development Report* and other international users and by the countries themselves.

54. Inconsistencies between internationally and nationally published statistics tend to undermine their utility and their credibility. Greater coordination at the national and international levels is essential.

55. There will always be some inconsistencies and some variability in the quality of data. It is incumbent upon users such as the Office, and upon the international agencies that collect the data from countries, to validate the information as far as possible and to ensure that the metadata that accompany the published statistics includes notes on any additional uncertainty.

56. The Office has highlighted the increasing demand for better statistics in basic areas of human development, such as poverty, income inequality and education, as well as the urgent needs for both conceptual and empirical development in pressing policy areas, such as personal security, human rights, governance, social equality and participation and environment. We also stressed the need for improving the international conversion systems, especially the purchasing power parities, which are crucial for global assessment.

57. The need for data is not unique but are shared by many others. The new impetus of the millennium development goals and the data requirements of global summits are adding to the drive for more and better statistics. We would be pleased to hear from the Statistical Commission their views on these issues and, in particular, on possible solutions.

Annex

Major sources of statistics used in the *Human Development Report*

Carbon Dioxide Information Analysis Centre

Food and Agriculture Organization of the United Nations

International Institute for Strategic Studies

International Labour Organization

International Monetary Fund

International Telecommunication Union

Inter-Parliamentary Union

Join United Nations Programme on HIV/AIDS (UNAIDS)

Luxembourg Income Study

Organisation for Economic Cooperation and Development

Stockholm International Peace Research Institute

United Nations Children's Fund

United Nations Conference on Trade and Development

United Nations Educational, Scientific and Cultural Organization

Office of the United Nations High Commissioner for Refugees

United Nations Interregional Crime and Justice Research Institute

United Nations Multilateral Treaties Deposited with the Secretary-General (United Nations Treaty Collection)

United Nations Population Division

United Nations Statistics Division

World Bank

World Health Organization

World Intellectual Property Organization

Annex table 1.
Indicators used in assessment of progress towards selected millennium development goals (*Human Development Report*, 2001)

	Indicator	*No. of countries assessed*[a]	*Percentage of world population covered*[b]
Extreme poverty	Average annual GDP per capital growth rate, 1990-1999, and Gini index, 1990-1999	85	77
Hunger	Percentage of people undernourished, 1990/92 and 1996/98	86	73
Safe water	Percentage of people with access to improved water sources, 1999	133	82
Universal education	Net primary enrolment ratio, 1990 and 1995-1997	58	39
	Percentage of children reaching grade 5, 1995 cohort	83	39
Gender equality	Ratio of girls to boys in school (girls' gross enrolment ratio to boys') 1990 and 1995-1997		
	Primary	88	63
	Secondary	85	64
Maternal mortality	Maternal mortality ratio (per 100,000 live births), 1995	145	85
Infant and child mortality	Infant mortality rate (per 1,000 live births), 1990 and 1999	159	85
	Under-five mortality rate (per 1,000 live births), 1990 and 1999	159	85

Source: United Nations Development Programme 2001. *Human Development Report*, 2001, technical note table 3.1, p. 247.

[a] Excluding high-income Organisation for Economic Cooperation and Development countries.

[b] Refers to the share of world population.